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WILDLIFE SURVEY PHASE 2 AND MANAGEMENT OF HUMAN-WILDLIFE CONFLICTS IN MOZAMBIQUE

Final Report

Part 4

Aerial Survey of Wildlife south of Lake Cabora Bassa

Aerial Survey of Elephants and other Large Herbivores south of Lake Cabora Bassa, Mozambique: 2010

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Summary

Elephants and other large herbivores, wild and domestic, in the region of Tete province, Mozambique, lying to the south of Lake Cabora Bassa were surveyed from the air during the dry season of 2010. Fixed-wing aircraft were used to conduct sample surveys, flying transects over the area. The study area totalled 16583 km^2. The area to the east of the Musengezi River (13963 km^2) was divided into 16 strata and surveyed during October-November 2010. Sampling intensity here averaged 25.2 %. The part of the study area to the west of the Musengezi River (2621 km^2) was divided into six strata and surveyed during August 2010 by staff of Zimbabwe's PWMA at a sampling intensity of 11.6 %.

The principal objective of the survey was to provide relatively precise and accurate estimates of the number of elephants and other large herbivores in the survey area as a whole, using a technique that could be executed within a reasonable time and at a reasonable cost. Secondary objectives included determination of the spatial distributions of elephants and other large herbivores; and estimation of the number and spatial distribution of elephant carcasses. The methods used were suitable for meeting the survey objectives, repeatable and technically robust.

Some large herbivores are not easily seen from the air and their numbers were undoubtedly underestimated. Nonetheless, population estimates are given for these species, because the estimates provide useful indices of abundance (with measures of precision) that can be used to determine spatial distribution, as well as temporal trends in population number. No corrections have been applied to any of the estimates to compensate for any undercounting or missed animals.

The estimated population numbers of the principal large herbivores in the entire survey area were: elephant 1985 (upper and lower 95% confidence limits ± 55.5 %); impala 3446 (± 46.2 %); buffalo 4626 (± 104 %); kudu 627 (± 37.8 %); hippopotamus 911 (± 48.6 %); warthog 528 (± 34.0 %); grey duiker 3149 (± 17.4 %); cattle 22988 (± 18.7 %); sheep and goats 16924 (± 20.9 %); and donkey 793 (± 35.5 %).

For most wild species, the majority of the population was to the west of the Musengezi River, even though this area formed just 16 % of the entire study area. Sable antelope, roan antelope and waterbuck were seen only to the west of the Musengezi River. The densities of other wild herbivores to the west of this River were often an order of magnitude greater than the densities of the same species to the east of the river. The densities of domestic livestock were lower in the west than in the east. The estimated population numbers of the principal large herbivores to the west of the Musengezi River were: elephant 1465 (± 73.6 %); impala 3429 (± 46.4 %); buffalo 4483 (± 107.4 %); kudu 266 (± 70.9 %); zebra 59 (± 209 %); hippopotamus 282 (± 122 %); warthog 432 (± 39.7 %); sable 341 (± 171 %); roan 30 (± 150 %); waterbuck 50 (± 225 %); cattle 1973 (± 171 %); and sheep and goats 3913 (± 73.1 %).

The estimated total number of elephant carcasses (291) in the entire survey area represented 12.8 % of the estimated total number of live and dead elephants. This all-carcass 'ratio' reflects the mortality rate of elephants during the several years preceding the survey. The ratio was similar to the west and the east of the Musengezi River. No fresh or recent carcasses of elephants were seen during the survey and so the 1+2 carcass ratio was 0 %. If local people commonly dismember dead elephants, and remove and, in effect, scatter their body parts, no carcass is left to be seen by a survey team. In these circumstances, the number of elephant carcasses seen during a survey may underestimate elephant mortality.

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Introduction

There is a high incidence of human-wildlife conflict in Mozambique (Dunham *et al*. 2010) and the national government has commissioned studies of the wildlife and these conflicts to address this problem (AGRECO 2008). The second phase of these studies included preparation of a land use plan intended to mitigate human-wildlife conflicts in the three administrative districts (Magoe, Cahora Bassa and Changara) that lie to the south of Lake Cabora Bassa in western Tete Province. The purpose of this survey was to provide current information on the numbers and spatial distribution of large mammals, to inform the preparation of this land use plan.

The methods used during this survey were similar to those used during previous surveys of the wildlife populations of western Magoe district, which forms the Magoe survey area (Mackie 2001, Dunham 2004). The principal objective of the survey was to provide relatively precise and accurate estimates of the number of elephants and other large herbivores in the survey area as a whole, using a technique that could be executed within a reasonable time and at a reasonable cost. Secondary objectives included determination of the spatial distributions of elephants and other large herbivores; and estimation of the number and spatial distribution of elephant carcasses. The methods used were suitable for meeting the survey objectives, repeatable and technically robust.

Study Area

The study area was bounded to the north by the southern shore of Lake Cabora Bassa, and to the west and south by the Mozambique-Zimbabwe international border (Map 1). The eastern boundary lay westwards of the power lines running south from Cabora Bassa dam to South Africa. This eastern boundary was chosen to eliminate areas of Changara district where there were relatively high densities of people and domestic livestock and thus few large, wild animals (M. Foloma, pers. comm.).

The entire study area is communal land, where people live, keep domestic livestock and grow crops. Fishing is an important activity in and along the shore of Lake Cabora Bassa. The study area is included in wildlife concessions where relatively small numbers of large animals are killed annually by sport hunters.

The study area is divided into western and eastern portions by the Musengezi River, which flows into Lake Cabora Bassa and prevents travel on land within Mozambique between the two regions. Travellers on land by go via Zimbabwe in order to go from one region to the other.

West of the Musengezi River is a generally triangular shaped piece of land, with two sides formed by the Zimbabwe-Mozambique international border. Much of the western boundary is shared with Zimbabwe's Dande Safari Area and it is likely that there is extensive movement across all sections of the international border, which is unfenced. Certainly the elephants in the western part of the study area are regarded as part of a much larger population that ranges westwards to Kariba and northwards, across the Zambezi River, into Zambia (Dunham 2004). During August 2010, the wildlife in the western Magoe region was surveyed from the air by the staff of Zimbabwe's Park & Wildlife Management Authority, in association with National Directorate of Land and Forests (DNTF) staff from Maputo and with financial support from the Monitoring Illegal Killing of Elephants (MIKE) project, during August 2010.

Eastwards of the Musengezi River, the study area shares a long border with Zimbabwe and the extent of animal movements across this border are largely unknown. But there are not thought to be significant population of wild large mammals on the Zimbabwe side of the border, although a small number of elephants frequent the valley of the Mazoe River (Dunham & Mackie 2002).

In this report, the **study area** refers the area that is bounded by the southern shore of Lake Cabora Bassa, the international border with Zimbabwe, and the line that forms the eastern boundary of the survey area (Map 1). The **survey area** refers to that part of the study area that lies east of the Musengezi River and where the wildlife was surveyed during a survey undertaken by AGRECO during October and November 2010. In this report, the results from the wildlife survey in AGRECO's **survey area** are combined with the results from PWMA's **Magoe area** to give combined estimates for the **study area**.

Methods

Survey Design

The wildlife in the area to the west of the Musengezi River - the Magoe survey area of Mackie (2001) and Dunham (2004) - was surveyed by staff of the Parks & Wildlife Management Authority, Zimbabwe, during August 2010. The methods used were essentially the same as those used to survey the remainder of the study area (that area to the east of the Musengezi River). Hence the Magoe area was not surveyed for a second time, but instead the results of the August 2010 survey are included in the analysis presented here.

The procedures used followed those well established for aerial surveys of African large herbivores (Norton-Griffiths 1978) and utilised during earlier surveys of large herbivores in Mozambique (e.g. Mackie 2001, Craig 2006).

The area to the east of the Musengezi River was divided into 16 strata. Systematic, parallel transects were positioned across each stratum, with the position of the first transect in a stratum determined randomly. Transects were arranged at right angles to the principal environmental feature – usually the Cabora Bassa shoreline or a major river - within a stratum (see Map 4 and Table 4 for transect orientations). Sampling intensity was planned to be 20 %, with a transect width (i.e. combined width of the two search strips) of 400 m.

Transect surveys cannot be undertaken safely in very hilly areas and so a hilly area along the international border to the west of Changara town was excluded from the survey area (Map 2). A small area (266 km^2) of hills near the centre of the survey area was also not surveyed.

The survey was designed using WWF-SARPO's custom software (AIRDESW, version dated 29/05/97). Given a stratum boundary in the form of an ATLAS GIS bna format file, and the transect orientation and spacing, this software generates flight lines (the transects), with the first flight line offset from the end of the stratum by an entered random number. The start and end points for each transect (Appendix 3) were transferred as waypoints to a Global Positioning System (GPS) receiver in the plane prior to flying each stratum.

Flight Procedures

Strata to the east of the Musengezi River were surveyed during the period 19 October to 3 November 2010 (Table 4). This was at the end of the dry season, before any rain had fallen. An advantage of conducting the survey so late during the dry season was that visibility for the observers was high, because most trees and bushes were leafless and often the grass layer had been burnt.

The aircraft used for the survey were a Cessna 206 (October 19 to 27) and a Cessna 185 (October 30 to November 3). Both were fitted with a radar altimeter and a Garmin GPSmap 296 GPS receiver. During the survey, the aircraft were flown at approximately 180 km per hour at about 300 feet above ground level. Waypoints denoting the start and end points of transects were entered into the GPS receiver and used to form routes. Navigation along the transects was undertaken by the pilot, with reference to the GPS receiver. The track of the aircraft was recorded using the track log facility of the GPS receiver, which noted the aircraft's location at intervals of 20 seconds (of time).

The aircraft crew included a pilot (Bryan Eygabroad in the Cessna 206 and Simon Rodger in the Cessna 185), a recorder (the author) who sat next to the pilot, and two observers who sat behind the pilot and recorder. The two observers were Greg Nyaguse and David Chipesi, who both had previous experience of observing during aerial surveys.

All animals seen by the observers within the search strips (see section *Strip Width and Calibration* below) were called to the recorder, who wrote down the species, the number of individuals of the group that were within the strip, and the GPS location against the time (to the nearest 30 seconds) after the start of the transect. Locations were recorded as waypoints using a Garmin GPSmap 276 receiver. During the survey, the actual height of the plane above ground level (agl) was recorded by the recorder, from the radar altimeter, every 30 seconds (of time) while flying along the transects. Later the mean height above ground level for each transect was calculated. The recorder used a stopwatch to record the time (to the nearest second) taken to fly each transect.

Observations

The observers were instructed to search for elephants but to count also other wild large herbivores and domestic livestock (cattle, goats, sheep, donkeys and pigs). Sheep and goats are not readily distinguished during aerial surveys and so both were recorded as 'shoats', but it is likely that most of those in the study area were goats. If any animal group was too large for all the individuals within it to be counted, group size was estimated by the observer. Groups of elephant bulls were differentiated from elephant cow herds (i.e. herds containing calves), although the latter may have included some bulls. The observers were instructed to note any carcasses seen. All elephant carcasses noted were classified using four age categories as follows:

Carcass category	Definition
1	**Fresh** Carcass still had flesh, giving the body a rounded appearance. Vultures were probably present and the ground was still moist from body fluids. (Likely to have died within the past month).
2	**Recent** Rot patch and skin still present. Skeleton not scattered. (Likely to have died within the past year).
3	**Old** Clean bones; skin usually absent; vegetation regrown in rot patch. (Likely to have died more than 1 year ago).
4	**Very Old** Bones scattered and turning grey. (Likely to have died within the last 10 years).

These carcass categories are those used by Douglas-Hamilton & Hillman (1981) and now recommended by MIKE for elephant surveys (Craig undated). MIKE (Monitoring the Illegal Killing of Elephants) is a CITES programme that uses aerial and ground surveys of elephant populations, and data collected by law-enforcement patrols, to monitor the illegal killing of elephants at representative sites across Africa and Asia.

Elephant tracks were also noted, as it is likely that elephants range more widely within the study area than the sightings of live elephants might suggest. Recent tracks of elephants could often be seen in sandy riverbeds and older tracks could sometimes be seen in areas with clayey top soils.

Ground hornbills are large and conspicuous birds and any seen were counted, as were poachers' camps. Poachers' camps were identified by the presence of woody racks used to dry meat over a fire. A settlement was defined as one or several huts probably occupied by a single family. A village was defined as a larger collection of huts probably occupied by several or many families. Commercial logging was recorded when signs of a felled tree were

observed. Places with surface water, i.e. potential sources of drinking water for wildlife, were also noted.

Strip Width and Calibration

Two fishing rods were attached with custom brackets to each wing strut of the aircraft, so that the rods pointed backwards and parallel to the ground during level flight. The distance between the rods on each strut was arranged so that, when the aircraft was flying at 300 feet agl, this distance represented a strip about 200 m wide on the ground. Each outer rod was marked with a small piece of tape to provide the observers with a "decision point" (it was at this point that the observer decided whether an animal was inside his search strip). When deciding whether animals were inside or outside the strip, the observer moved his eye so as to align the tape on the outer rod with a small piece of tape on his window, thereby ensuring that all his decisions were made at the same viewing angle.

Prior to and during the survey, the strip widths were calibrated by flying the aircraft at right angles across an airstrip that had two sets of large-sized numbers (from 0 to 40) arranged at 10-meter intervals along the side of the airstrip. The numbers were arranged as 40 39 38….2 1 0 1 2…..38 39 40, with 0 near the centre of the airstrip. Each observer noted the largest and smallest number within his strip and the recorder noted the aircraft's height above ground level, as recorded by the radar altimeter. For each flight passing over the calibration numbers, the combined strip width (in meters) was adjusted to 300 feet above ground level as follows:

$$\text{Combined strip width at 300 feet} = \frac{\text{Actual combined strip width} \times 300}{\text{Actual flying height}}$$

The combined strip widths, after adjustment to 300 feet above ground level, were then averaged to give the nominal (calibrated) combined strip width at 300 feet. This was 457.2 m for surveys flown with the Cessna 206 during October 19 – 27 and 453.1 m for surveys flown with the Cessna 185 during October 30 to November 3 (Appendix 1).

Data Analysis

Population estimates and 95 % confidence limits for individual strata were calculated with WWF-SARPO's custom software (AIRSURVW, version dated 22/05/97). This software uses Jolly's (1969) method 2 for unequal-sized sample units. Given the mean combined strip width when the plane was flying at 300 feet (i.e. the calibrated strip width), and the mean flying height for each transect, the software determines the actual combined strip width for each transect. The actual combined strip width is the product of the nominal strip width at 300 ft and the mean height for the transect, divided by 300. The area of each transect is calculated as the product of the actual combined strip width and the transect length. Transect lengths were provided by the survey design software (Appendix 3).

Transects near the boundary of a stratum were sometimes broken into two or more sections, with land outside the stratum between the sections. For the purposes of analysis, data for all sections of the same transect were combined and entered into the software as one transect. Calculation of the variance of a population estimate required the calculation of N, an integer that is the total number of transects that could have been used in the survey of a stratum. The value of N for a stratum was found by dividing the baseline length by the overall mean actual strip width for that stratum.

Thus, for each stratum, N was calculated as:

$$N = \frac{\text{Baseline length} \times 1000 \times 300}{\text{Nominal strip width} \times \text{Average flying height}}$$

where:

Baseline length = length (in km) of a straight line aligned at right angles to the orientation of the transects, and running from one end of the stratum to the far end;

Nominal strip width = calibrated combined strip width (in m) when flying at 300 feet agl; and

Average flying height = Mean of the mean flying heights (in feet) for all transects in the stratum.

The calculated value of N was rounded to the nearest integer. The value of Student's *t* used to calculate the 95 % confidence limits of a population estimate was t_{n-1} for $P = 0.05$ (Rohlf & Sokal 1981), where n = number of surveyed transects in stratum. The WWF-SARPO software AIRSURVW calculates the 95 % confidence *interval* as the difference between the mean population estimate and the upper (or lower) 95 % confidence *limit*. The software displays the lower 95 % confidence limit as zero if the calculated value is negative.

Entire study area

Population estimates for the entire study area (and for the regions to the west and the east of the Musengezi River) were calculated as the sum of the estimates for the individual strata within the study area, or region. The upper and lower 95% confidence limits for population estimates for the entire study area or region were calculated as:

$$\text{Population estimate} \pm [t_v \times \text{Square root of (Sum of Variances for individual strata)}]$$

where:

v = the degrees of freedom estimated by Satterthwaite's rule (Snedecor & Cochran 1980, Gasaway *et al*. 1986).

v was an integer, calculated using the formula:

$$v = \frac{(\text{Sum of Variances for individual strata})^2}{\text{Sum of } [(\text{Variance for individual stratum})^2 / (n-1)]}$$

with the outcome of this formula rounded down to the nearest integer. t_v was calculated using the EXCEL function TINV(0.05, *v*).

Elephant carcasses

The elephant carcass "ratio" *sensu* Douglas-Hamilton & Burrill (1991) - although it is a percentage, not a ratio - was calculated as the estimated number of all elephant carcasses (i.e. age categories 1, 2, 3 and 4 summed) as a percentage of the estimated number of all elephants (i.e. live + dead).

When interpreting the results of this survey, it is reasonable to assume that all category 1 or 2 carcasses represent elephants that died during 2010. Hence, the 1+2 carcass ratio provides an index of elephant mortality (both natural and anthropogenic) during 2010 and it was calculated as the estimated number of elephant carcasses in age categories 1 or 2 as a percentage of the sum of the estimated number of live elephants and the estimated number of carcasses in age categories 1 or 2.

Search Effort

The greater the time spent searching each square kilometre of a transect, the greater the probability that the observer saw all the animals that were there. Search effort (in minutes per square kilometre) for a stratum was defined as the total time spent flying all transects within that stratum, divided by the total area of those same transects.

Even the largest herbivores are not easily seen from the air and the numbers of all species were probably underestimated, with the degree of underestimation greater for small or cryptic species than for large species. However, population estimates are given for all species, because the estimates provide useful indices of abundance (with measures of precision) that can be used to determine spatial distribution, as well as temporal trends in population number. No corrections have been applied to any of the estimates to compensate for any undercounting or missed animals.

Results

Search Effort

Search effort averaged 0.60 minutes km^{-2} for the survey area (Table 4).

Animal Numbers

The estimated numbers of elephants, elephant bulls in bull groups, elephants in cow herds, elephant carcasses (age categories 3 and 4), buffalo, impala, hippopotamus, warthog, kudu, zebra, waterbuck, sable, roan, common duiker, cattle, sheep and goats, donkey, domestic pig, ground hornbill and crocodile are given in Tables 5 to 25 respectively. Estimates are given for each stratum, for the regions west and east of the Musengezi River, and for the entire study area.

In addition, separate summary tables are provided for the Magoe area to the west of the Musengezi River, the survey area to the east of that river, and for the entire study area (Tables 1 - 3).

The columns in these tables give (from left to right):

- the name of the **stratum**;
- the **estimate** of the number of animals of that species (or of carcasses) in that stratum, in other words the population estimate;
- the number of individuals of that species seen (**No. seen**) *inside the search strips* during the survey of that stratum;
- the **variance** of the estimated number of animals in that stratum;
- the 95 % confidence interval of the population estimate for that species in the stratum, as a percentage of the population estimate for that stratum (**% CI**);
- the lower 95 % confidence limit of the population estimate (**Lower CL**); and
- the upper 95 % confidence limit of the population estimate (**Upper CL**).

The last row of each table gives the same measures for the entire study area. There may appear to be small arithmetic errors in some tables, but these are simply rounding errors: all numbers in the tables were calculated to three decimal places before they were rounded to the required number of decimal places. If the number of individuals seen (**No. seen**) is greater than the lower confidence limit (**Lower CL**), then it is biologically meaningful to replace the calculated lower confidence limit with the number seen.

For practical purposes, it can be assumed that the number of a given species in the survey area lies between the lower and upper confidence limits, with the 'estimate' providing the best estimate of the number there. For example, from Table 5, one can say that there were

between 882 and 3087 elephants in the survey area, with 1985 being the best estimate of the number of elephants in the area. For practical purposes, one might say that there were between 900 and 3100 elephants in the survey area during the dry season of 2010, with 2000 being the best estimate of the number of elephants there.

Small numbers of bushbuck, bushpig, baboon, grysbok and monkey were seen during the survey, but no attempt has been made to estimate the numbers of these species. No eland were seen during the survey.

Elephant Carcasses

No fresh or recent carcasses of elephants (i.e. age categories 1 or 2) were recorded during the survey and hence the 1+2 carcass ratio was 0.

The estimated total number of elephant carcasses (291) in the entire study area during 2010 represented 12.8 % of the estimated total number of live and dead elephants. This all-carcass 'ratio' reflects the mortality rate of elephants during the several years preceding the survey. The ratio was similar to the west and the east of the Musengezi River (13.2 % to the west and 11.7 % to the east), although the carcasses in the east were generally older than those in the west (Map 9).

Table 1. Population estimates and statistics for major wildlife species, domestic livestock and elephant carcasses west of the Musengezi River, Mozambique, during August 2010

Species	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
Elephant	1465	189	278077	73.6	387	2544	0.56
Elephant bull	156	21	3557	81.7	28	283	0.06
Elephant cow	1310	168	274520	81.9	237	2383	0.50
Buffalo	4483	587	5042431	107.4	0	9299	1.71
Zebra	59	8	3210	208.7	0	183	0.02
Impala	3429	461	591864	46.4	1837	5020	1.31
Hippopotamus	282	33	26927	122.4	0	626	0.11
Warthog	432	54	7151	39.7	260	603	0.16
Kudu	266	33	8561	70.9	77	455	0.10
Waterbuck	50	4	1650	225.3	0	163	0.02
Sable	341	45	71853	171.1	0	925	0.13
Roan	30	4	434	149.6	0	76	0.012
Duiker grey	634	56	47874	84.4	99	1169	0.24
Cattle	1973	143	1912156	171.5	0	5356	0.75
Sheep/goat	3913	381	1781027	73.1	1051	6776	1.49
Donkey	0	0	0	0.0	0	0	0.00
Pig domestic	0	0	0	0.0	0	0	0.00
Elephant carcass 3	199	25	924	30.9	138	261	0.08
Elephant carcass 4	23	3	211	139.2	0	54	0.009
Ground hornbill	154	18	4437	93.2	11	298	0.06
Crocodile	616	69	57531	95.3	29	1203	0.24

Table 2. Population estimates and statistics for major wildlife species, domestic livestock and elephant carcasses east of the Musengezi River, Mozambique, during October-November 2010

Species	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
Elephant	519	134	14821	46.7	277	762	0.04
Elephant bull	57	15	389	70.3	17	97	0.004
Elephant cow	463	119	14432	51.7	223	702	0.03
Buffalo	143	41	14709	176.7	0	396	0.01
Zebra	51	12	1874	175.6	0	140	0.004
Impala	17	4	127	136.9	0	40	0.001
Hippopotamus	629	155	21659	46.9	334	924	0.05
Warthog	96	25	796	58.5	40	153	0.007
Kudu	361	90	5562	41.2	212	509	0.03
Waterbuck	0	0	0	0.0	0	0	0.00
Sable	0	0	0	0.0	0	0	0.00
Roan	0	0	0	0.0	0	0	0.00
Duiker grey	2515	627	14388	9.4	2278	2752	0.18
Cattle	21016	5223	2502881	14.9	17882	24149	1.51
Sheep/goat	13010	3279	1284109	17.2	10772	15249	0.93
Donkey	793	197	19737	35.5	512	1074	0.06
Pig domestic	172	42	2347	57.6	73	271	0.012
Elephant carcass 3	17	4	52	86.3	2	31	0.001
Elephant carcass 4	52	13	148	46.3	28	76	0.004
Ground hornbill	165	41	1489	46.2	89	241	0.01
Crocodile	130	31	1987	70.3	39	222	0.009

Table 3. Population estimates and statistics for major wildlife species, domestic livestock and elephant carcasses in the area of Mozambique south of Lake Cabora Bassa during the dry season of 2010

Species	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
Elephant	1985	323	292899	55.5	882	3087	0.12
Elephant bull	212	36	3946	62.2	80	344	0.01
Elephant cow	1773	287	288952	61.8	676	2869	0.11
Buffalo	4626	628	5057140	104.3	0	9449	0.28
Zebra	110	20	5085	133.4	0	256	0.007
Impala	3446	465	591991	46.2	1854	5037	0.21
Hippopotamus	911	188	48586	48.6	468	1354	0.05
Warthog	528	79	7947	34.0	348	707	0.03
Kudu	627	123	14123	37.8	390	864	0.04
Waterbuck	50	4	1650	225.3	0	163	0.003
Sable	341	45	71853	171.1	0	925	0.02
Roan	30	4	434	149.6	0	76	0.002
Duiker grey	3149	683	62262	17.4	2600	3698	0.19
Cattle	22988	5366	4415036	18.7	18691	27286	1.39
Sheep/goat	16924	3660	3065136	20.9	13383	20465	1.02
Donkey	793	197	19737	35.5	512	1074	0.05
Pig domestic	172	42	2347	57.6	73	271	0.010
Elephant carcass 3	216	29	976	29.2	153	279	0.013
Elephant carcass 4	75	16	359	51.7	36	113	0.004
Ground hornbill	320	59	5926	49.7	161	478	0.02
Crocodile	746	100	59517	80.0	149	1343	0.05

Animal Distributions

The spatial distribution of the principal wild herbivores is shown in Maps 7 to 16. On these maps, the locations of sightings of groups of the given species are shown, together with an indication of the size of the group. However, it must be remembered that the recorded number of groups of any species was determined by both group density and the sampling intensity – which varied between west and east of the Musengezi River (Table 4).

The spatial distribution of elephant carcasses of age categories 3 and 4 is shown in Map 9.

Human Activities

The spatial distributions of human settlement is shown in Map 5, of commercial logging in Map 6 and of domestic livestock in Maps 17 and 18. The estimated number of poachers' camps in the study area was 57 (confidence interval 67 %) and more than 50 % of these camps were in the Mukumbura 1 stratum.

Discussion

Wildlife

The area west of the Musengezi River formed just 16 % of the study area, but contained the majority of the wildlife. The only sable antelope, roan antelope and waterbuck seen were west of the Musengezi. For most other wild species, their density west of the Musengezi was an order of magnitude greater than their density east of the Musengezi (Tables 1 and 2). Only for four species - elephant, hippopotamus, kudu and duiker - did the population estimate for the area east of the Musengezi River exceed 200 individuals.

Elephant Carcasses

Elephant carcasses provide an index of elephant mortality only if dead elephants (or at least their skeletons) are left in the field to decay. If, as may happen in communal lands that are occupied by people, dead elephants are dismembered and the body parts removed and in effect scattered over a wide area, no carcass is left to be observed by a survey team. In these circumstances, the number of elephant carcasses seen during an aerial survey of the wildlife may underestimate elephant mortality.

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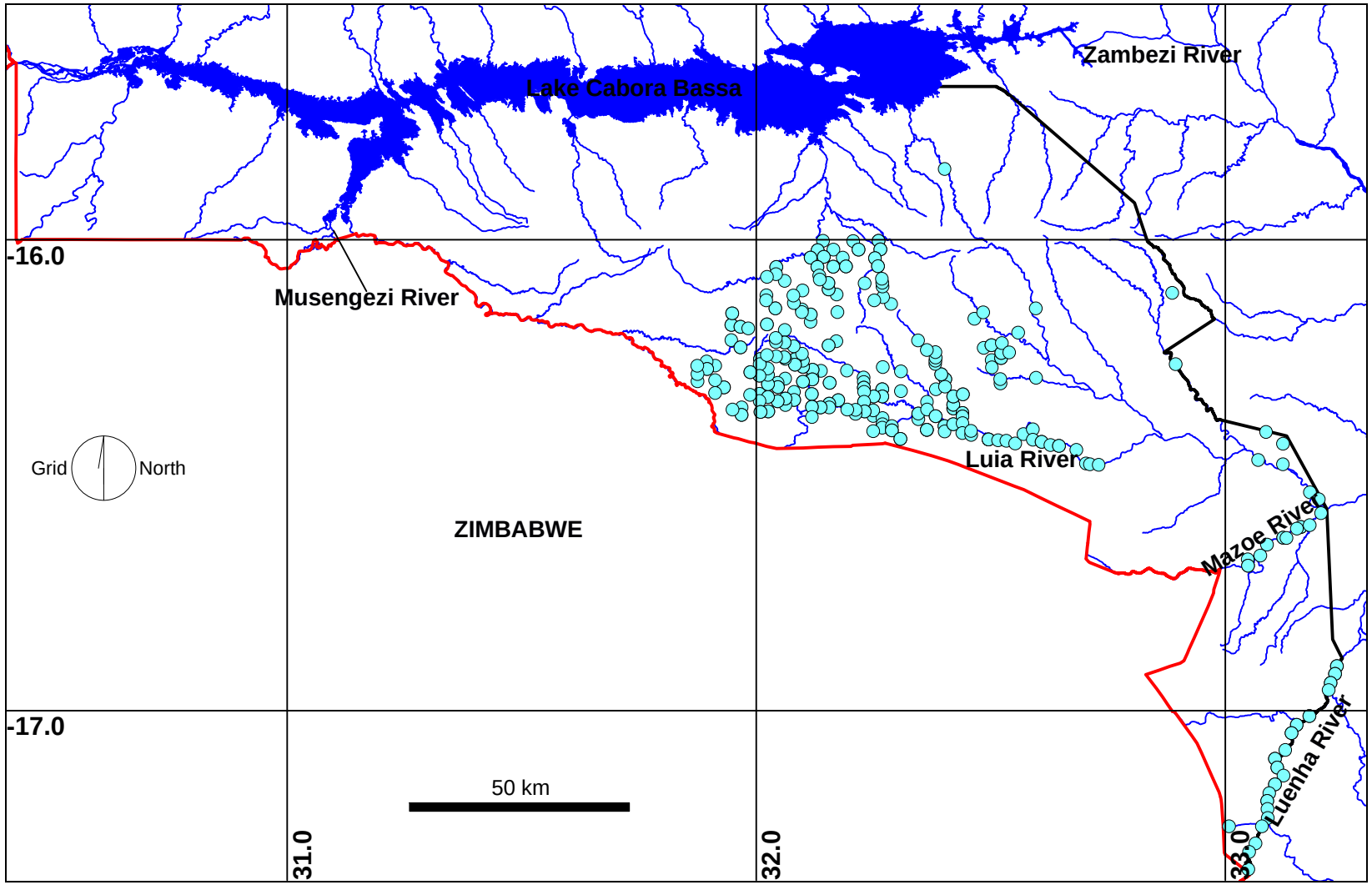
Table 4. Sampling statistics for the 2010 aerial surveys of large herbivores south of Cabora Bassa, Mozambique

Stratum name	Stratum area (km^2)	Transect spacing (km)	Transect orientation (°)	Number of transects [= n]	Percent of stratum sampled	Time and date sampled	Flying time (hours) [a]			Search effort (minutes km^{-2})
							Transect	Stratum	Total	
West of Musengezi River										
Magoe 1	348	2.0	0	13	13.5	am 25 Aug	0.86	1.10	-	1.10
Magoe 2	343	2.0	0	15	13.6	pm 25 Aug am 27 Aug	0.91	1.22	-	1.17
Magoe 3	135	5.0	0	5	8.0	am 27 Aug	0.23	0.27	-	1.26
Magoe 4	656	2.6	90	10	10.9	am pm 28 Aug	1.35	1.42	-	1.13
Magoe 5	747	2.1	90	13	13.2	am 27 Aug am 28 Aug	1.92	2.13	-	1.17
Magoe 6	392	5.0	90	7	7.2	am 27 Aug	0.56	0.78	-	1.19
Subtotal / mean	**2621**				**11.6** [b]		**5.83**	**6.92**	**9.48**	**1.17**
East of Musengezi River										
Mukumbura 1	1222	2.0	0	27	23.7	am 19 Oct am 20 Oct	3.26	3.90	6.08	0.68
Mukumbura 2	821	2.0	0	29	23.8	am 21 Oct	2.17	2.75	4.25	0.67
Mphende	741	2.0	0	21	25.7	am 20 Oct am 22 Oct	1.90	2.30	3.78	0.60
Mukumbura 3	793	2.0	0	21	26.0	am 22 Oct	1.97	2.50	2.88	0.57
Mukumbura 4	742	2.0	0	19	24.5	am 23 Oct	1.76	2.23	3.38	0.58
Chintholo 2	877	2.0	0	26	25.1	am 25 Oct	2.11	2.60	3.63	0.58
Chitima 1	549	2.0	0	20	26.6	am 27 Oct	1.33	1.78	2.50	0.54
Chitima 3	515	2.0	90	11	24.5	pm 25 Oct	1.19	1.42	2.23	0.57

Stratum name	Stratum area (km^2)	Transect spacing (km)	Transect orientation (°)	Number of transects [= n]	Percent of stratum sampled	Time and date sampled	Flying time (hours) [a]			Search effort (minutes km^{-2})
							Transect	Stratum	Total	
Chitima 4	555	2.0	90	11	24.4	pm 26 Oct	1.26	1.52	2.18	0.56
Chintholo 1	706	2.0	0	21	28.6	am 2 Nov am 3 Nov	1.81	2.35	4.22	0.54
Chitima 2	1196	2.0	90	26	23.9	pm 20 Oct pm 21 Oct pm 23 Oct	3.01	3.62	4.85	0.63
Kachembe	695	2.0	90	19	23.6	pm 19 Oct pm 23 Oct	1.74	2.18	3.10	0.63
Chintholo 3	1253	2.0	0	28	24.9	am pm 30 Oct pm 31 Oct pm 1 Nov	3.12	4.05	7.07	0.60
Chintholo 4	944	2.0	0	23	26.0	am 26 Oct	2.23	2.65	3.60	0.54
Chipembere	1415	2.0	0	27	26.7	am 31 Oct am1 Nov	3.98	4.75	6.78	0.63
Luenha	938	2.0	90	43	25.4	am 2 Nov am 3 Nov	2.69	4.02	7.35	0.68
Subtotal / mean	**13962**				**25.2** [b]		**35.54**	**44.62**	**67.90**	**0.60**
TOTAL	**16583**									

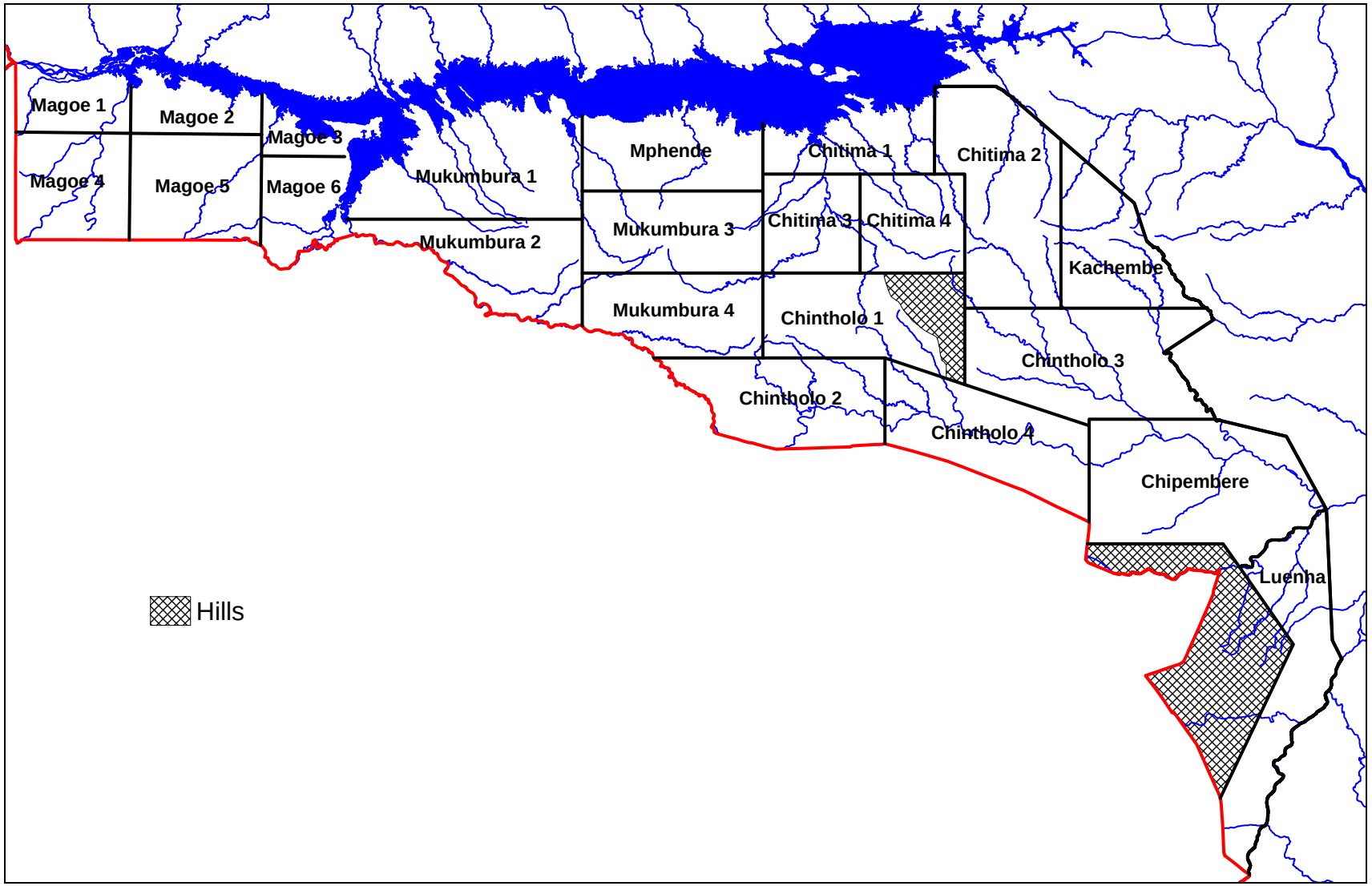
[a] Transect time is the time spent searching the transects; stratum time is the transect time, plus the time spent travelling between transects in the same stratum; and total time is the stratum time, plus the time spent travelling between the stratum and the airstrip

[b] Weighted mean, with stratum area as a proportion of the total area as weight



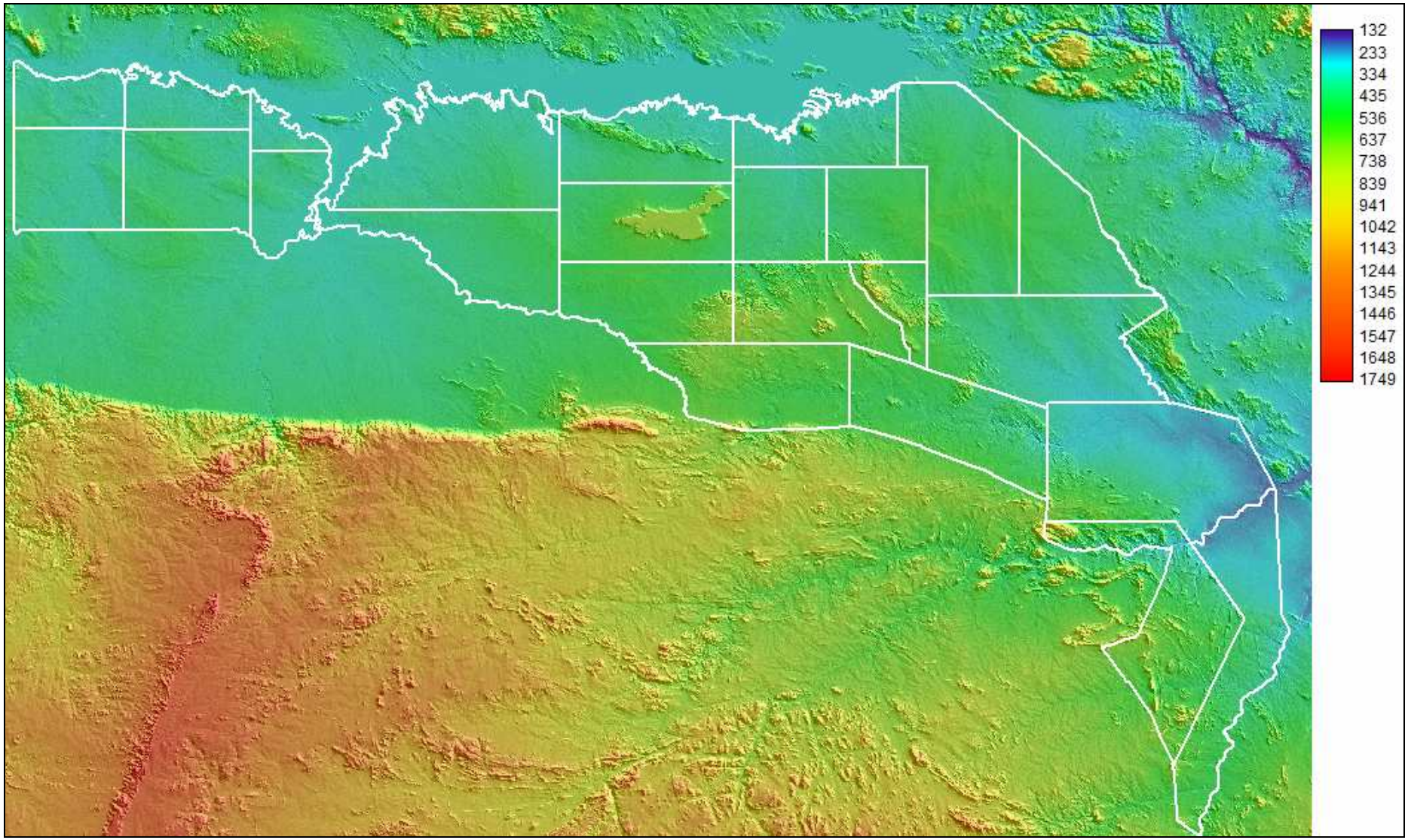
Map 1. The study area in western Mozambique lies between the international border and the southern shore of Lake Cabora Bassa

Red line indicates the Mozambique-Zimbabwe international border, and the heavy black line the eastern boundary of the study area. The major rivers are named, but aboveground flow of water in most other rivers is only seasonal. Blue dots indicate where surface water was seen away from Cabora Bassa during the survey. The survey team were not instructed to record water points during the survey of the area to the west of the Musengezi River.



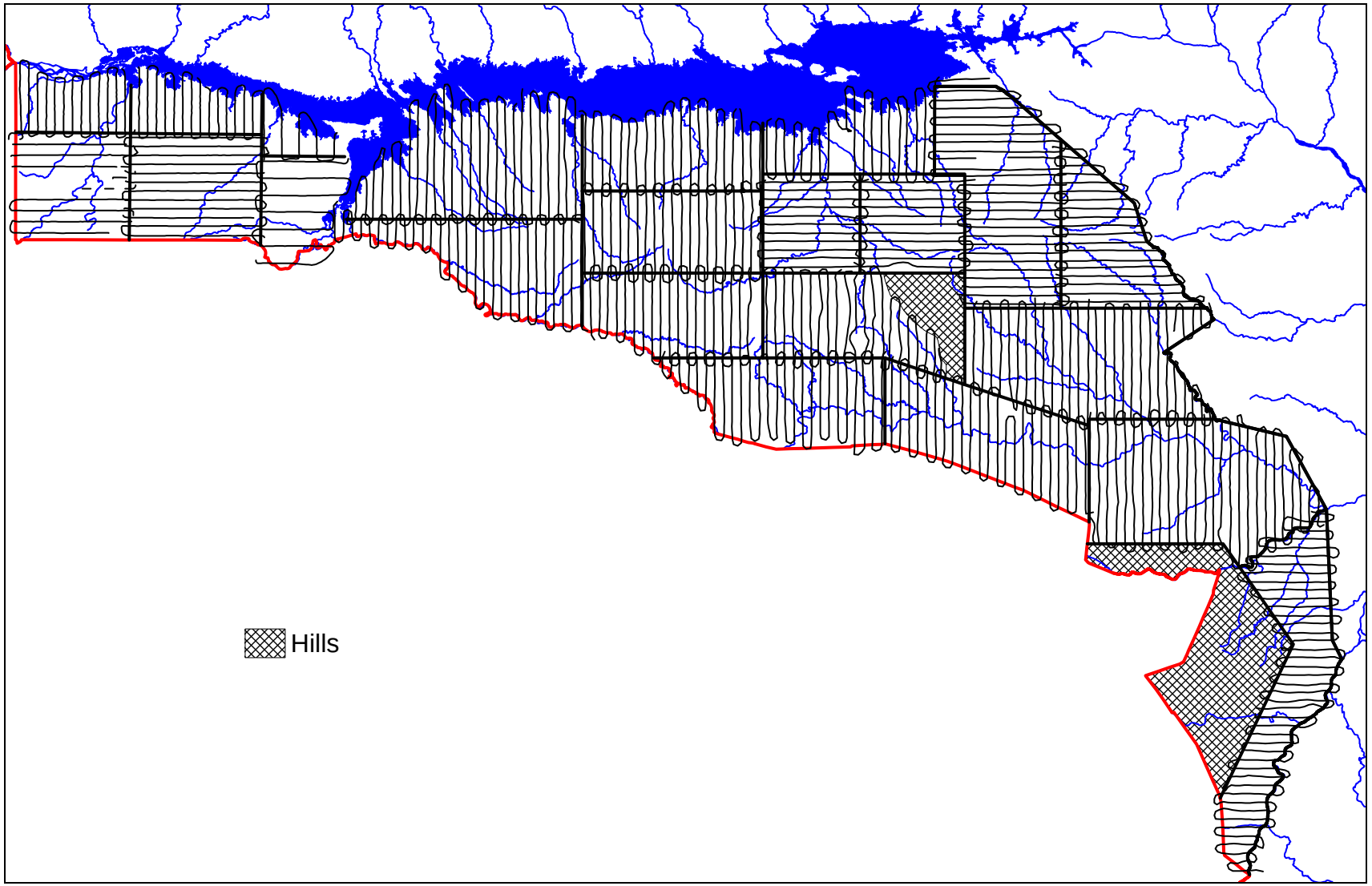
Map 2. Strata used during the 2010 aerial surveys of the southern Cabora Bassa region

Bold lines indicate strata boundaries and labels give strata names. Red line indicates the Mozambique-Zimbabwe international border.



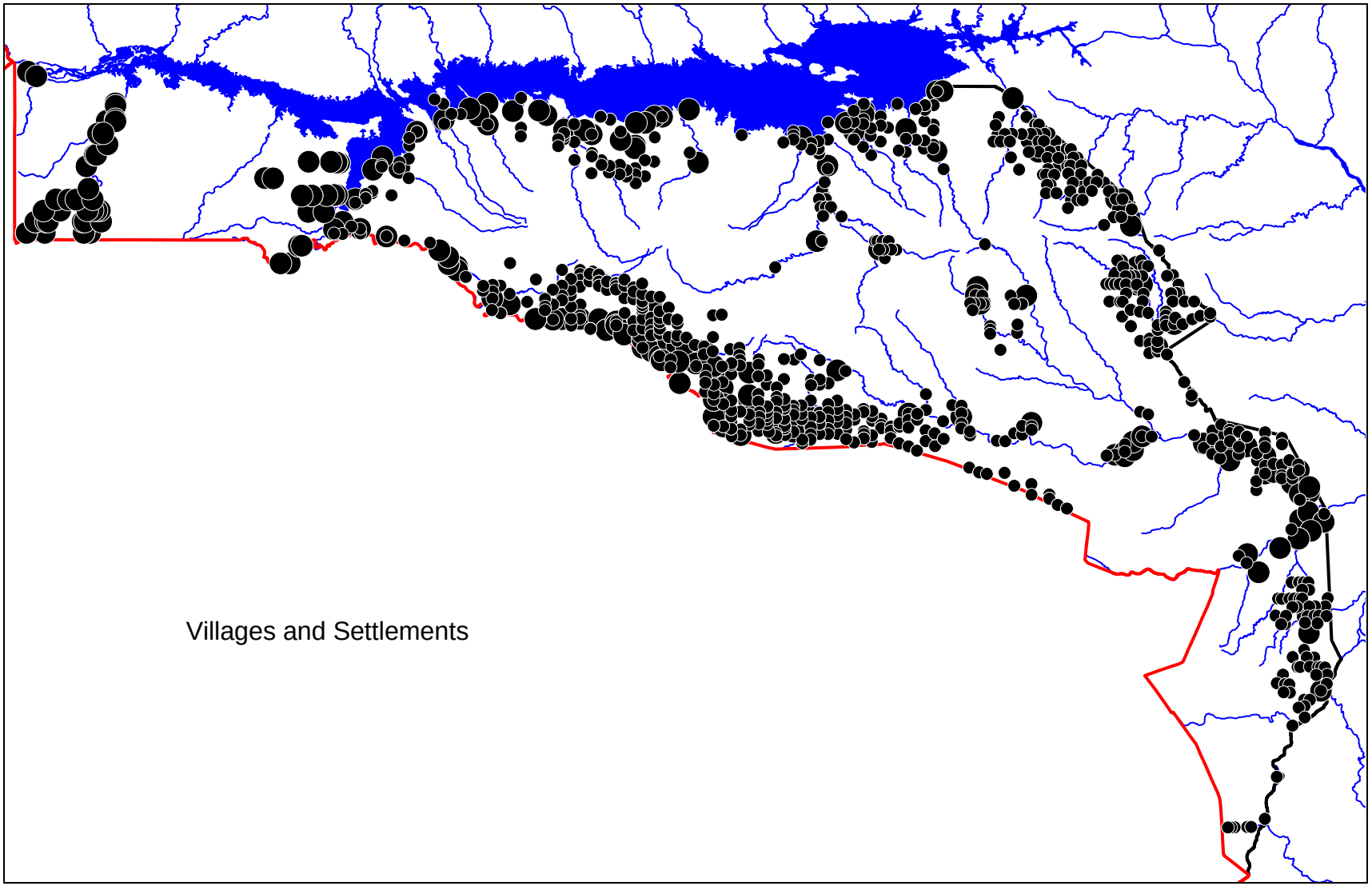
Map 3. Digital elevation model of the study area and its surrounds

Altitude is in meters. Bold white lines indicate strata boundaries.



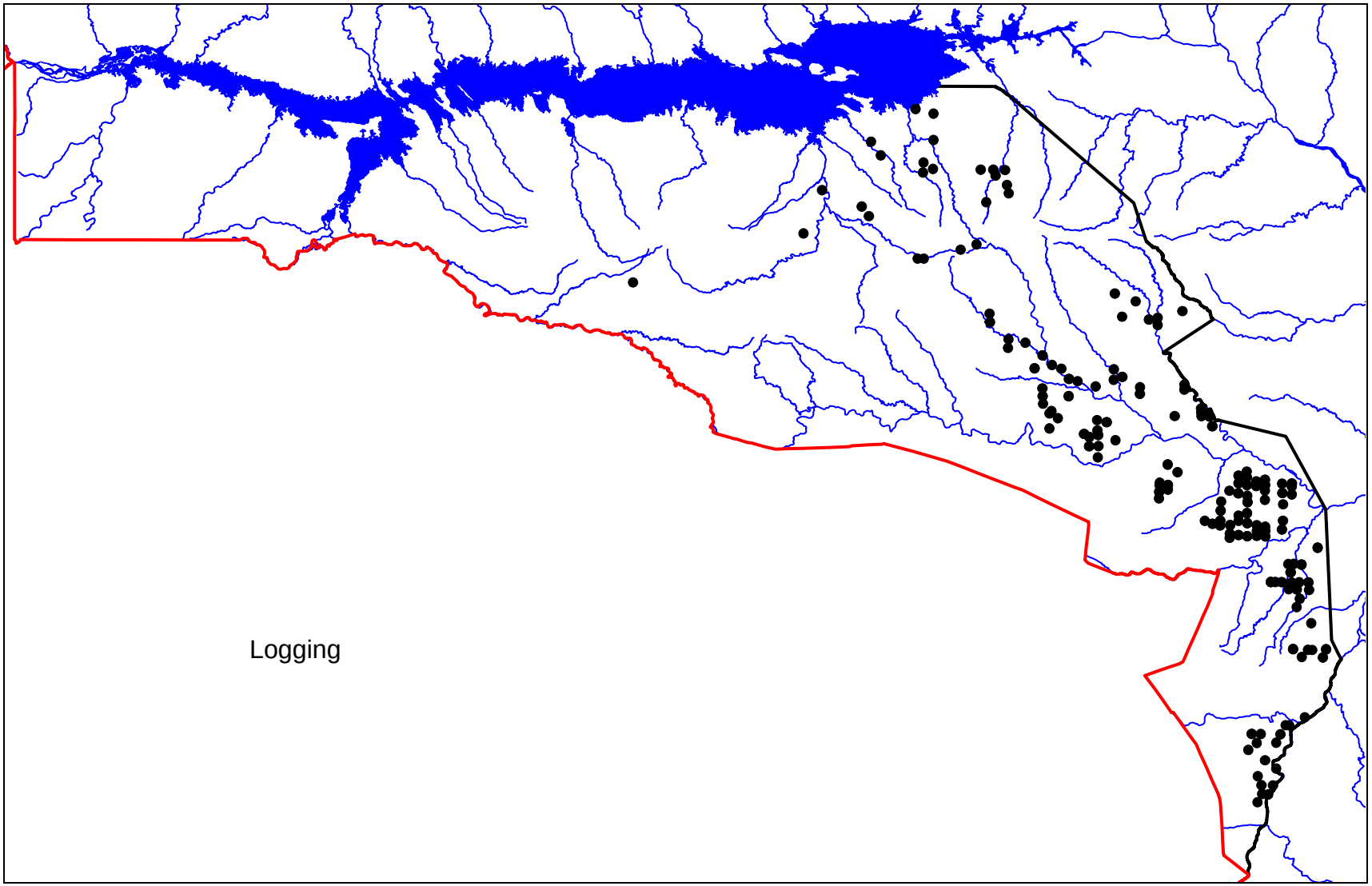
Map 4. Tracklogs (flight lines) indicating the transects used during the 2010 aerial surveys of the southern Cabora Bassa region

Bold lines indicate strata boundaries, thin parallel lines the flight lines along the transects, the red line the international border, and blue lines the river systems.



Map 5. Distribution of villages and human settlements south of Lake Cabora Bassa during the 2010 dry season

Large circles indicate villages, small circles indicate settlements. Only villages were recorded to the west of the Musengezi River.



Map 6. Distribution of tree felling for commercial purposes south of Lake Cabora Bassa during the 2010 dry season

The survey team were not instructed to record logging during the survey of the area to the west of the Musengezi River.

Table 5. Population estimates and statistics for Elephant south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	495	67	80128	124.5	0	1112	1.42
Magoe 2	125	17	4962	121.0	0	276	0.36
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	284	31	39944	159.3	0	736	0.43
Magoe 5	561	74	153044	151.9	0	1414	0.75
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	1465	189	278077	73.6	387	2544	0.56
East of Musengezi River							
Mukumbura 1	110	26	4228	121.7	0	244	0.09
Mukumbura 2	4	1	15	191.3	0	12	0.005
Mphende	62	16	1698	138.2	0	148	0.08
Mukumbura 3	27	7	405	155.9	0	69	0.03
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	4	1	9	168.6	0	10	0.007
Chitima 3	94	23	3902	148.2	0	233	0.18
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	91	26	1909	100.4	0	182	0.13
Chitima 2	4	1	13	178.3	0	12	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	124	33	2641	85.5	18	229	0.09
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	519	134	14821	46.7	277	762	0.04
Totals	**1985**	**323**	**292899**	**55.5**	**882**	**3087**	**0.12**

Table 6. Population estimates and statistics for Elephant bulls south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	118	16	3167	103.7	0	241	0.34
Magoe 2	22	3	207	139.9	0	53	0.06
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	15	2	184	194.6	0	45	0.02
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	156	21	3557	81.7	28	283	0.06
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	4	1	15	191.3	0	12	0.005
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	4	1	11	179.5	0	11	0.005
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	4	1	9	168.6	0	10	0.007
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	7	2	35	177.6	0	19	0.010
Chitima 2	4	1	13	178.3	0	12	0.003
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	34	9	305	106.6	0	70	0.02
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	57	15	389	70.3	17	97	0.004
Totals	**212**	**36**	**3946**	**62.2**	**80**	**344**	**0.013**

Table 7. Population estimates and statistics for Elephant cows south of Lake Cabora Bassa

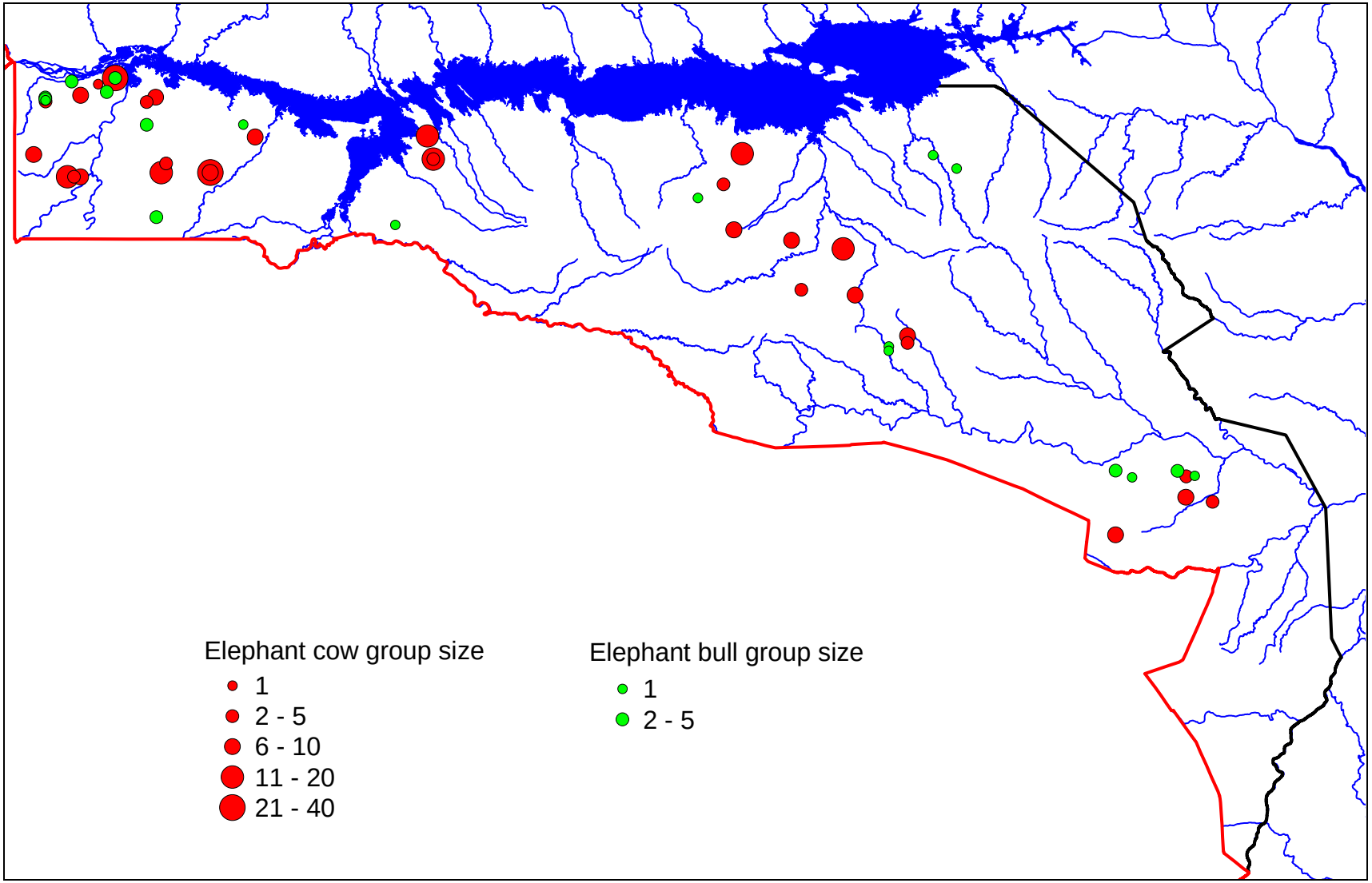
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	377	51	76962	160.3	0	982	1.08
Magoe 2	103	14	4755	143.8	0	251	0.30
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	284	31	39944	159.3	0	736	0.43
Magoe 5	546	72	152860	156.0	0	1398	0.73
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	1310	168	274520	81.9	237	2383	0.50
East of Musengezi River							
Mukumbura 1	110	26	4228	121.7	0	244	0.09
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	62	16	1698	138.2	0	148	0.08
Mukumbura 3	23	6	394	179.4	0	65	0.03
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	94	23	3902	148.2	0	233	0.18
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	84	24	1874	107.8	0	174	0.12
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	90	24	2335	110.5	0	189	0.06
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	463	119	14432	51.7	223	702	0.03
Totals	**1773**	**287**	**288952**	**61.8**	**676**	**2869**	**0.11**

Table 8. Population estimates and statistics for Elephant Carcasses (age category 3) south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	30	4	254	117.4	0	64	0.09
Magoe 2	15	2	81	131.2	0	34	0.04
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	64	7	189	48.6	33	95	0.10
Magoe 5	91	12	400	47.9	47	135	0.12
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	199	25	924	30.9	138	261	0.08
East of Musengezi River							
Mukumbura 1	8	2	26	123.2	0	19	0.007
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	4	1	13	184.0	0	12	0.005
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	4	1	14	182.4	0	12	0.003
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	17	4	52	86.3	2	31	0.001
Totals	**216**	**29**	**976**	**29.2**	**153**	**279**	**0.013**

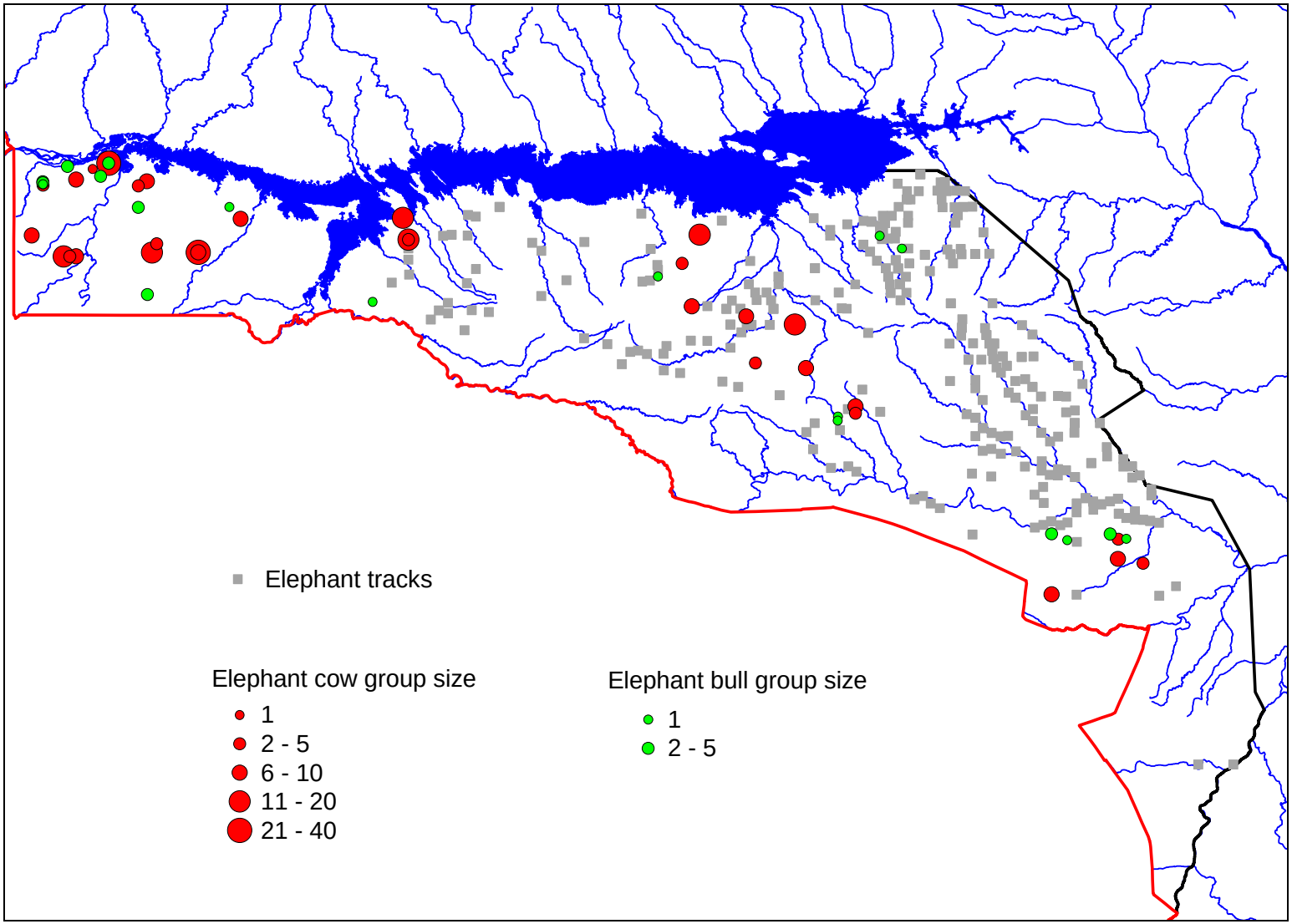
Table 9. Population estimates and statistics for Elephant Carcasses (age category 4) south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	23	3	211	139.3	0	54	0.03
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	23	3	211	139.2	0	54	0.01
East of Musengezi River							
Mukumbura 1	13	3	35	95.7	1	25	0.01
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	4	1	11	179.2	0	11	0.005
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	4	1	13	194.3	0	12	0.008
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	3	1	8	172.9	0	10	0.005
Chitima 2	8	2	26	124.8	0	19	0.007
Kachembe	4	1	15	190.6	0	12	0.006
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	8	2	20	121.2	0	17	0.008
Chipembere	7	2	20	123.4	0	17	0.005
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	52	13	148	46.3	28	76	0.004
Totals	**75**	**16**	**359**	**51.7**	**36**	**113**	**0.004**

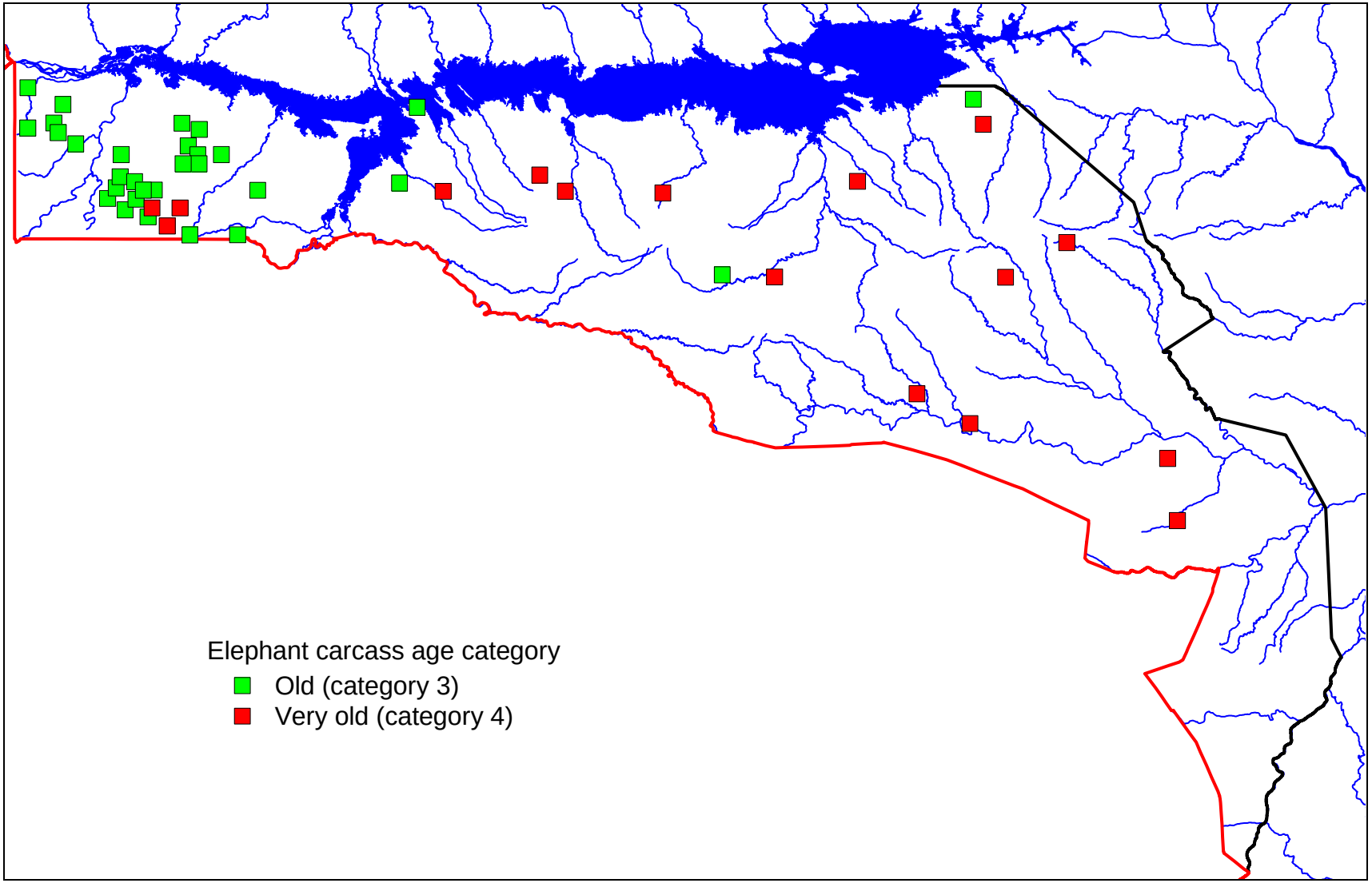


Map 7. Distribution of elephant south of Lake Cabora Bassa, Mozambique, during the 2010 dry season

The dots indicate the locations of elephants seen *within the search strips*, together with an indication of the size of each group. Small dots overlaying large dots indicate two or more groups of elephants in close proximity. Variation in dot density to the west and east of the Musengezi River reflects differences between regions in *both* the density of elephant groups *and* the sampling intensity. The red lines indicate international borders. The black line indicates the eastern boundary of the survey area.

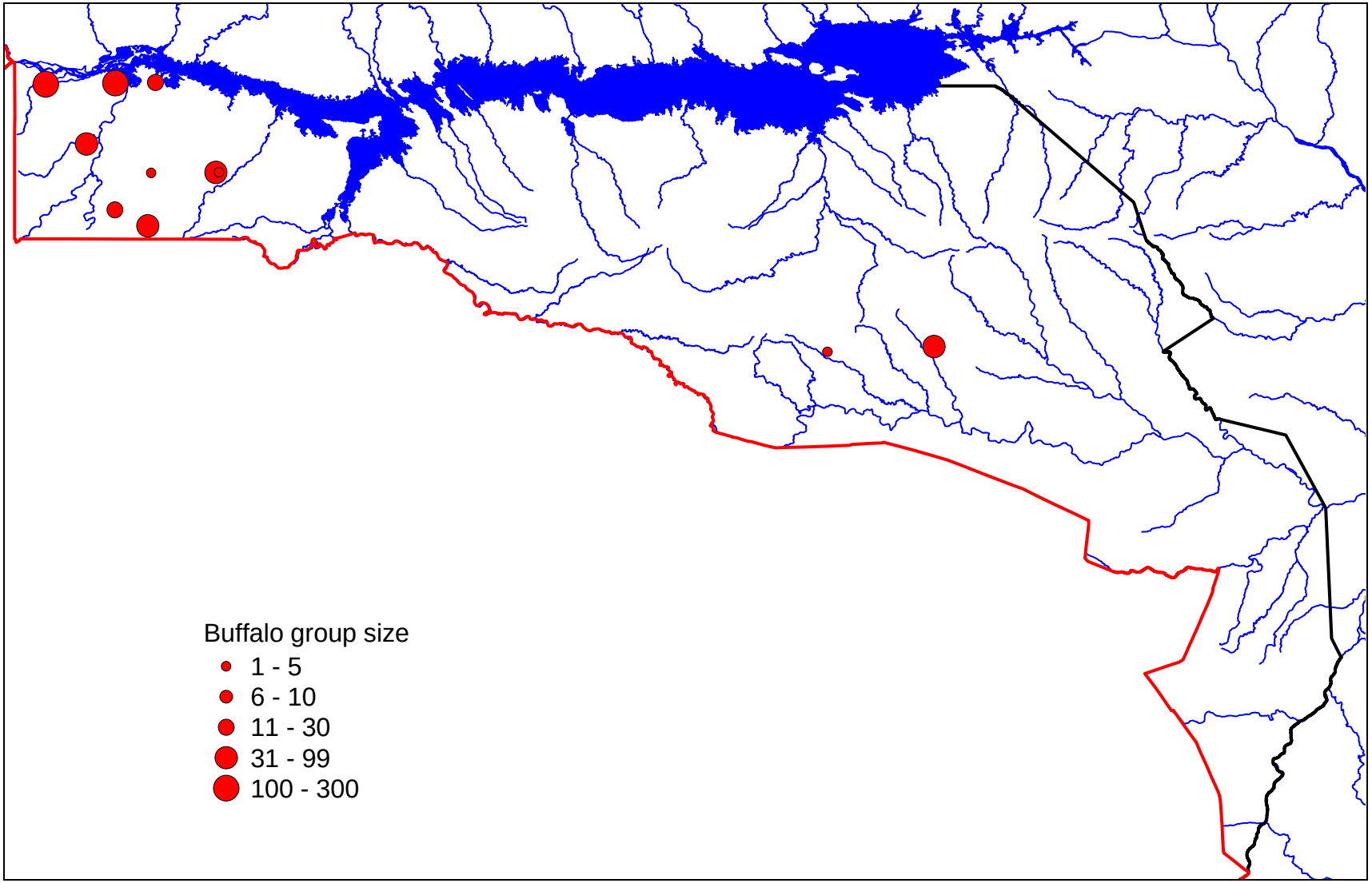


Map 8. Distribution of live elephants and tracks of elephants south of Lake Cabora Bassa during the 2010 dry season



Map 9. Distribution of elephant carcasses south of Lake Cabora Bassa during the 2010 dry season

No fresh (category 1) or recent (category 2) carcasses of elephant were seen during the surveys.



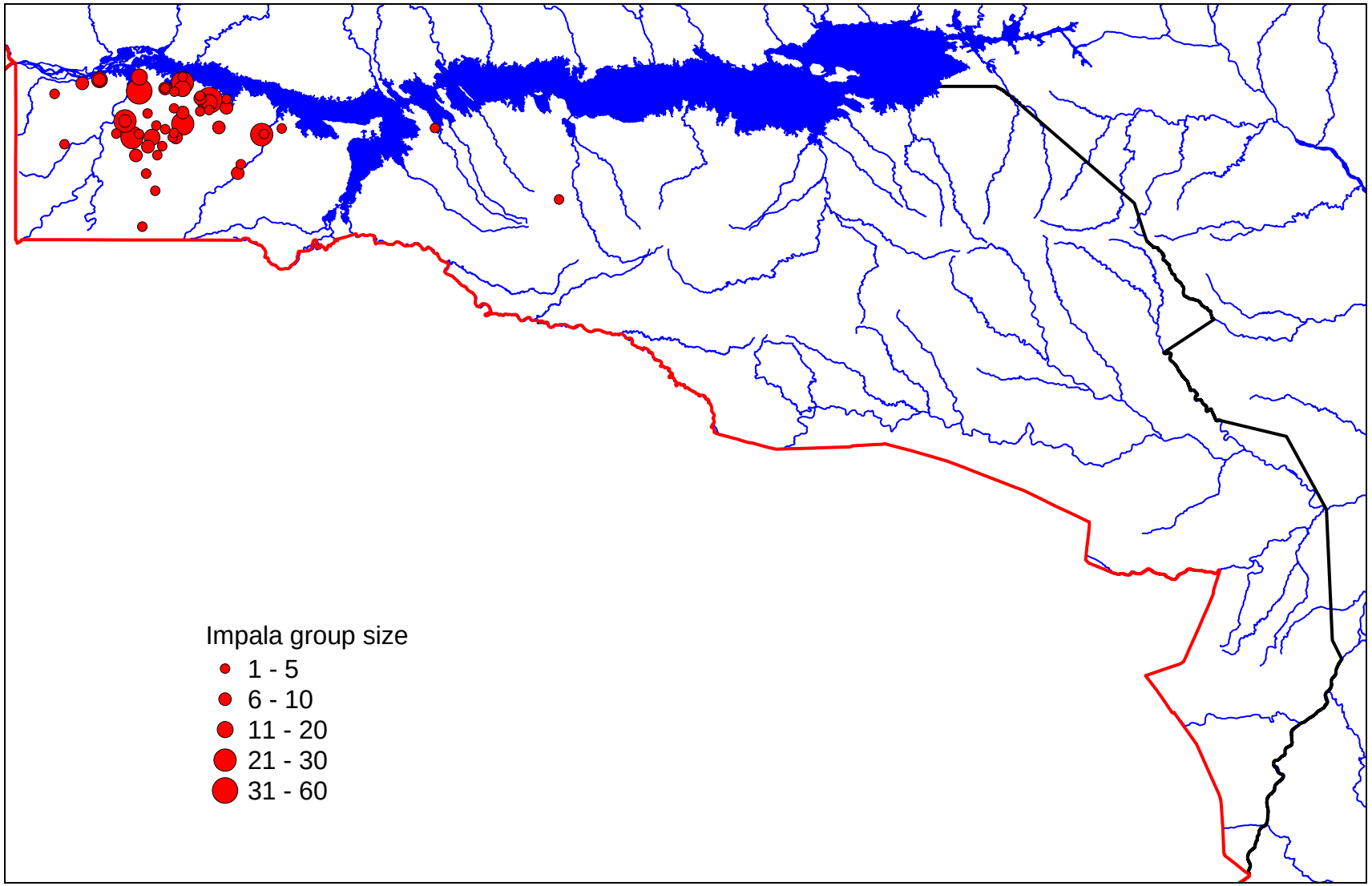
Map 10. Distribution of buffalo south of Lake Cabora Bassa during the 2010 dry season

Table 10. Population estimates and statistics for Buffalo south of Lake Cabora Bassa

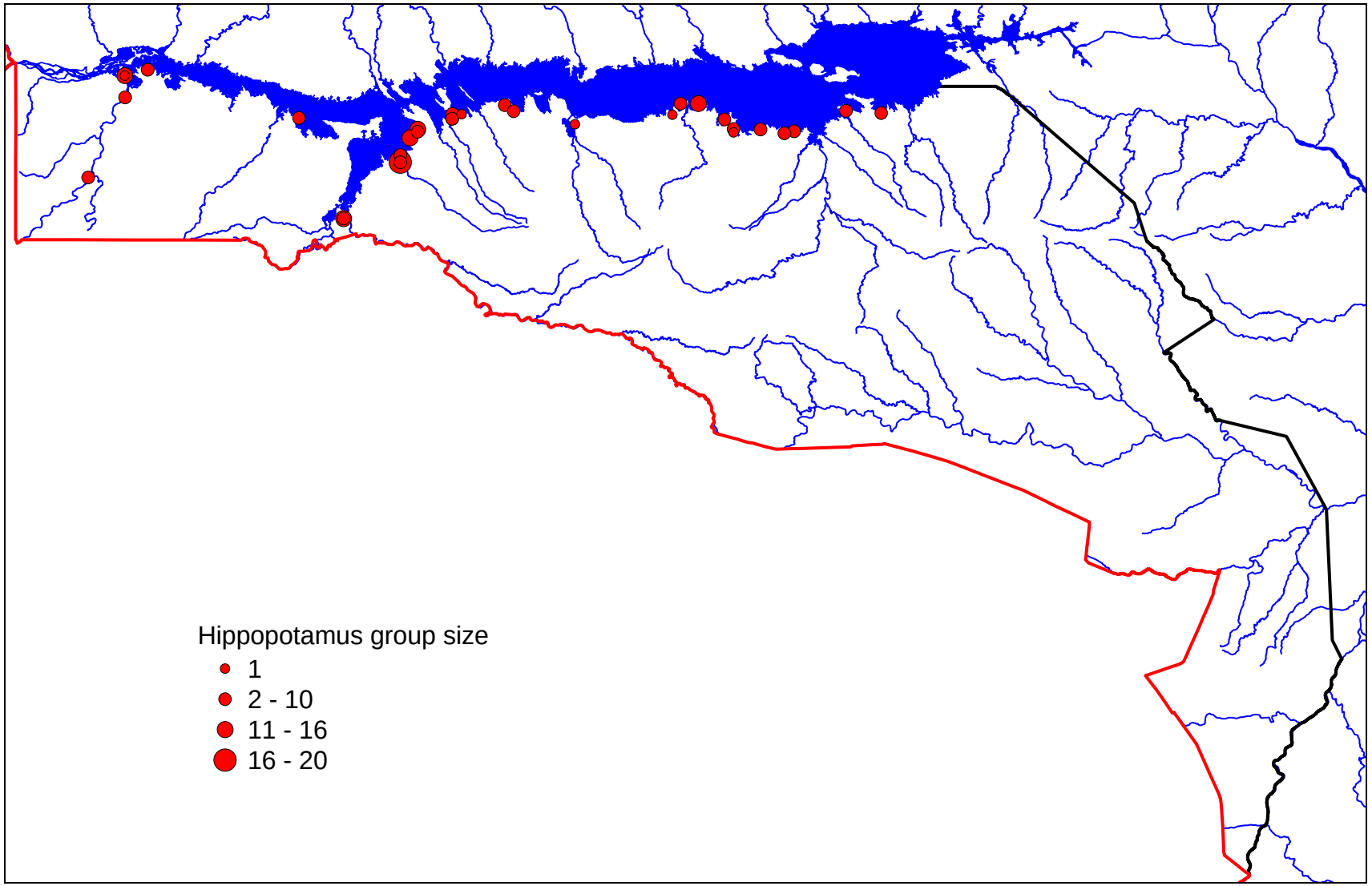
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	2957	400	4627962	158.5	0	7645	8.50
Magoe 2	96	13	7486	194.3	0	281	0.28
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	641	70	180581	150.0	0	1602	0.98
Magoe 5	789	104	226402	131.4	0	1826	1.06
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	4483	587	5042431	107.4	0	9299	1.71
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	143	41	14709	176.7	0	396	0.20
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	143	41	14709	176.7	0	396	0.010
Totals	**4626**	**628**	**5057140**	**104.3**	**0**	**9449**	**0.28**

Table 11. Population estimates and statistics for Impala south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	421	57	49630	115.2	0	907	1.21
Magoe 2	2263	308	446420	63.3	830	3696	6.60
Magoe 3	25	2	91	106.0	0	52	0.19
Magoe 4	37	4	1294	222.2	0	118	0.06
Magoe 5	683	90	94429	98.1	13	1352	0.91
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	3429	461	591864	46.4	1837	5020	1.31
East of Musengezi River							
Mukumbura 1	17	4	127	136.9	0	40	0.01
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	17	4	127	136.9	0	40	0.001
Totals	**3446**	**465**	**591991**	**46.2**	**1854**	**5037**	**0.21**



Map 11. Distribution of impala south of Lake Cabora Bassa during the 2010 dry season



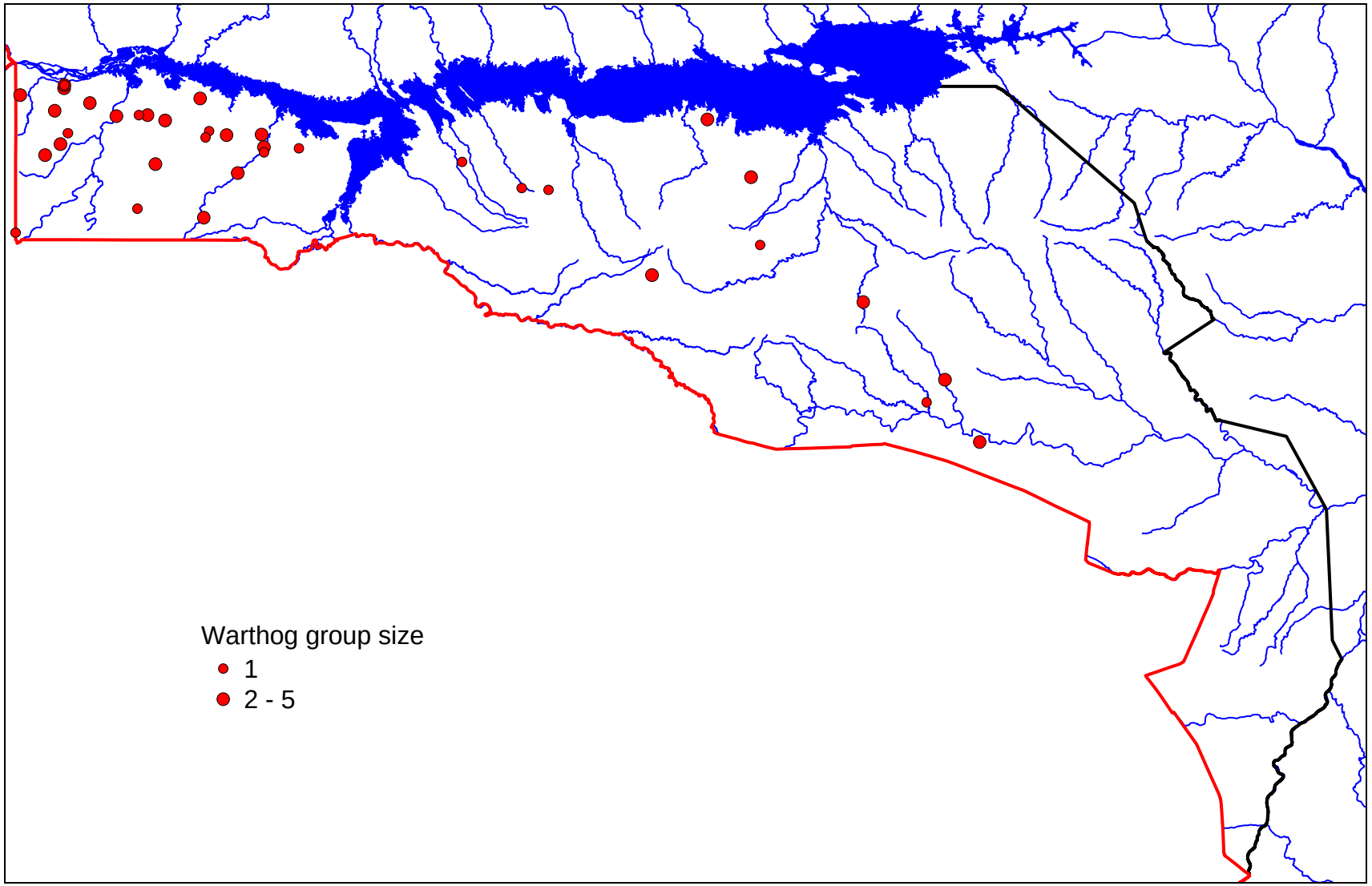
Map 12. Distribution of hippopotamus south of Lake Cabora Bassa during the 2010 dry season

Table 12. Population estimates and statistics for Hippopotamus south of Lake Cabora Bassa

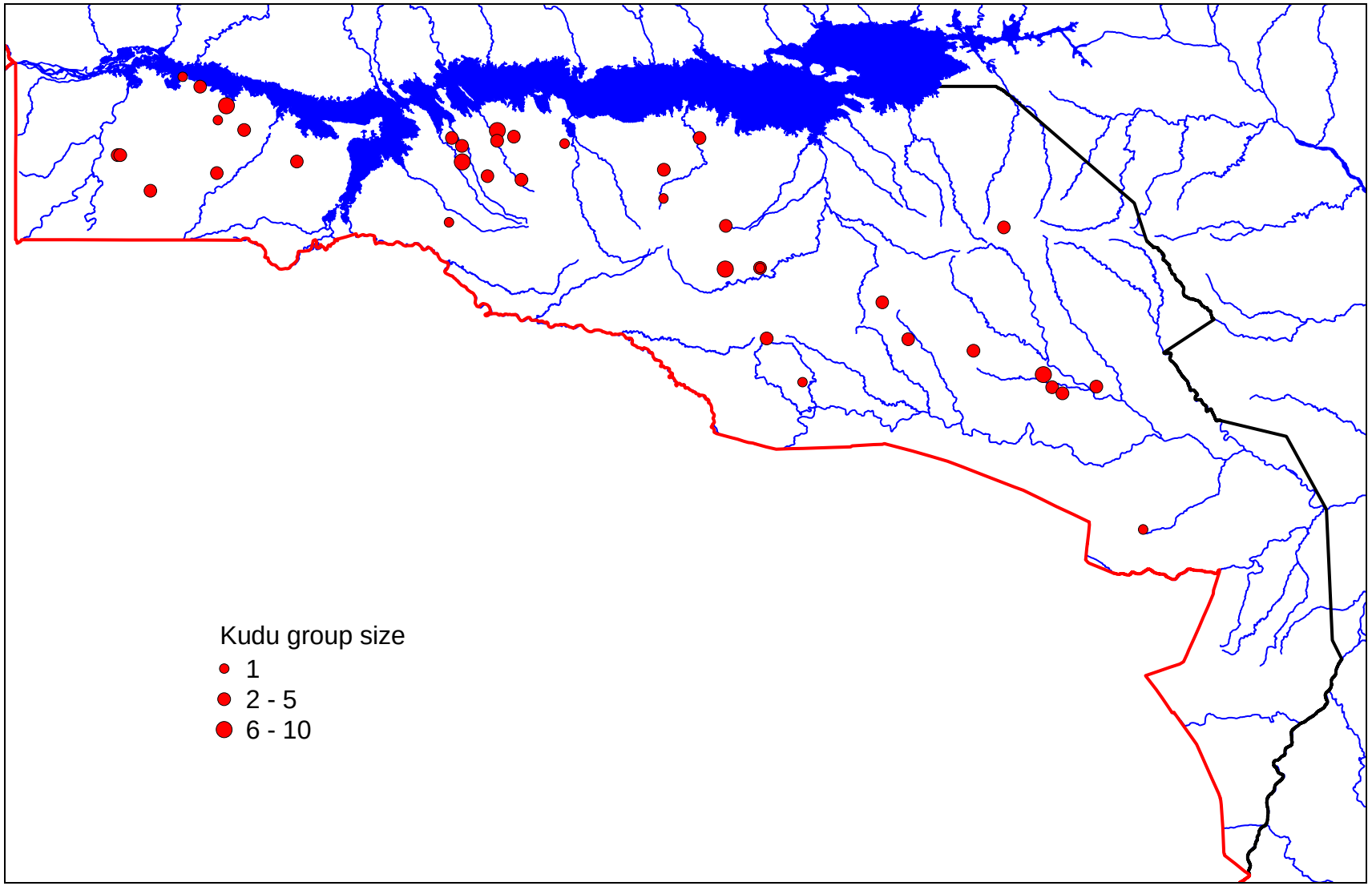
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	140	19	17748	206.7	0	431	0.40
Magoe 2	29	4	702	193.4	0	86	0.09
Magoe 3	75	6	7184	313.3	0	310	0.56
Magoe 4	37	4	1293	222.1	0	118	0.06
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	282	33	26927	122.4	0	626	0.11
East of Musengezi River							
Mukumbura 1	321	76	14300	76.6	75	567	0.26
Mukumbura 2	55	13	2609	191.5	0	159	0.07
Mphende	163	42	3334	73.8	43	284	0.22
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	90	24	1417	87.3	11	169	0.16
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	629	155	21659	46.9	334	924	0.05
Totals	**911**	**188**	**48586**	**48.6**	**468**	**1354**	**0.05**

Table 13. Population estimates and statistics for Warthog south of Lake Cabora Bassa

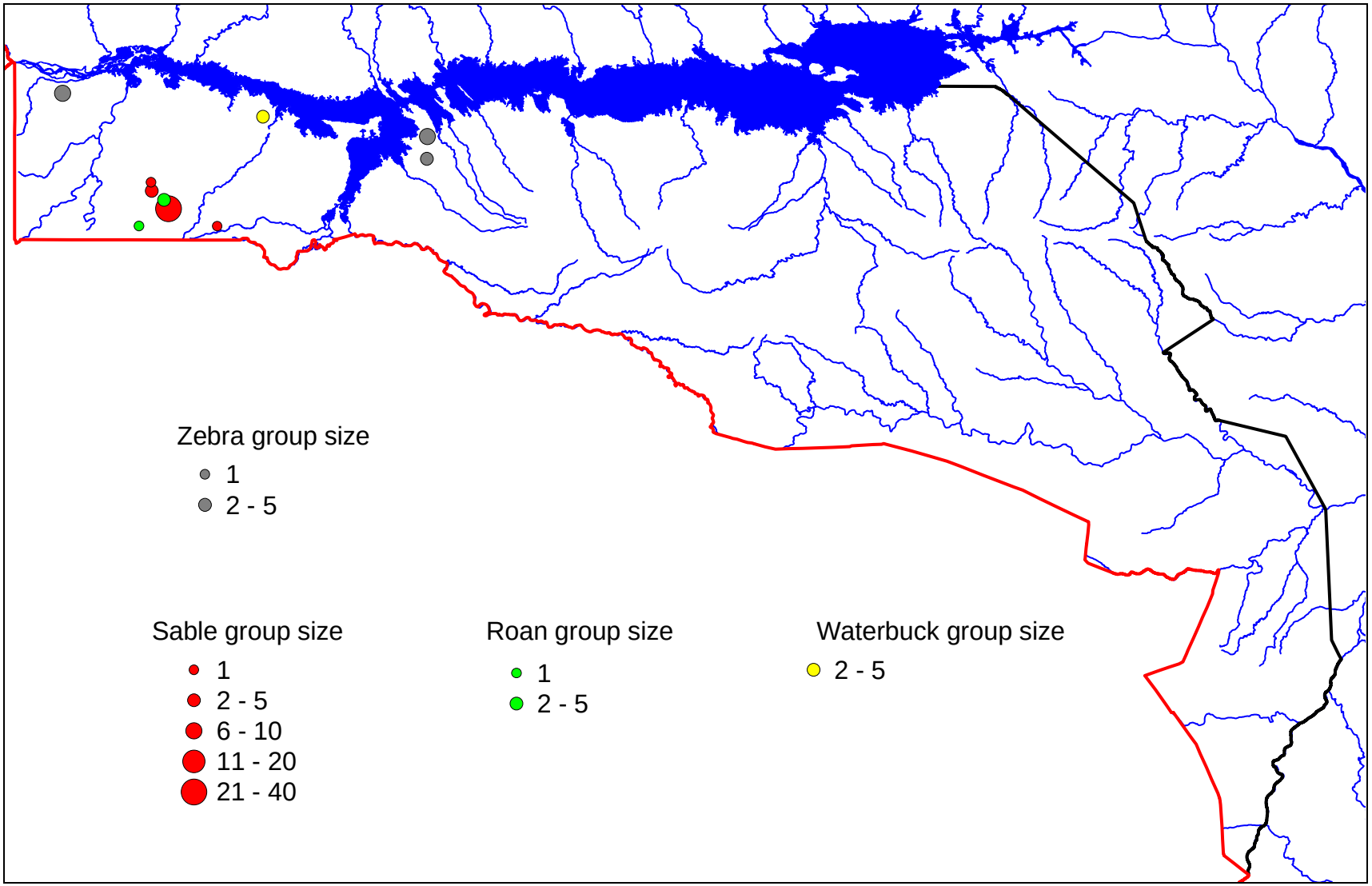
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	118	16	3303	105.9	0	244	0.34
Magoe 2	125	17	1565	67.9	40	210	0.36
Magoe 3	50	4	751	151.9	0	126	0.37
Magoe 4	55	6	573	98.5	1	109	0.08
Magoe 5	83	11	960	80.9	16	151	0.11
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	432	54	7151	39.7	260	603	0.16
East of Musengezi River							
Mukumbura 1	13	3	35	96.0	1	25	0.01
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	31	8	343	124.2	0	70	0.04
Mukumbura 3	4	1	11	180.4	0	11	0.005
Mukumbura 4	8	2	53	187.3	0	23	0.011
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	17	5	216	175.7	0	48	0.03
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	23	6	138	105.6	0	47	0.02
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	96	25	796	58.5	40	153	0.01
Totals	**528**	**79**	**7947**	**34.0**	**348**	**707**	**0.03**



Map 13. Distribution of warthog south of Lake Cabora Bassa during the 2010 dry season



Map 14. Distribution of kudu south of Lake Cabora Bassa during the 2010 dry season



Map 15. Distribution of sable, roan, waterbuck and zebra south of Lake Cabora Bassa during the 2010 dry season

Table 14. Population estimates and statistics for Kudu south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	140	19	4848	107.0	0	289	0.41
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	46	5	2019	222.0	0	147	0.07
Magoe 5	53	7	1045	132.6	0	124	0.07
Magoe 6	28	2	649	226.0	0	90	0.07
Subtotals	266	33	8561	70.9	77	455	0.10
East of Musengezi River							
Mukumbura 1	144	34	2800	75.7	35	252	0.12
Mukumbura 2	4	1	15	188.0	0	12	0.005
Mphende	31	8	323	120.6	0	69	0.04
Mukumbura 3	50	13	942	127.9	0	114	0.06
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	4	1	11	173.1	0	11	0.01
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	31	9	255	106.1	0	65	0.05
Chitima 2	13	3	121	180.6	0	35	0.01
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	80	20	1084	84.2	13	148	0.06
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	4	1	11	179.3	0	10	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	361	90	5562	41.2	212	509	0.03
Totals	**627**	**123**	**14123**	**37.8**	**390**	**864**	**0.04**

Table 15. Population estimates and statistics for Zebra south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	59	8	3210	208.7	0	183	0.17
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	59	8	3210	208.7	0	183	0.02
East of Musengezi River							
Mukumbura 1	51	12	1874	175.6	0	140	0.04
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	51	12	1874	175.6	0	140	0.004
Totals	**110**	**20**	**5085**	**133.4**	**0**	**256**	**0.01**

Table 16. Population estimates and statistics for Waterbuck south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	50	4	1650	225.2	0	163	0.37
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	50	4	1650	225.3	0	163	0.02
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	0	0	0	0.0	0	0	0.00
Totals	**50**	**4**	**1650**	**225.3**	**0**	**163**	**0.003**

Table 17. Population estimates and statistics for Sable south of Lake Cabora Bassa

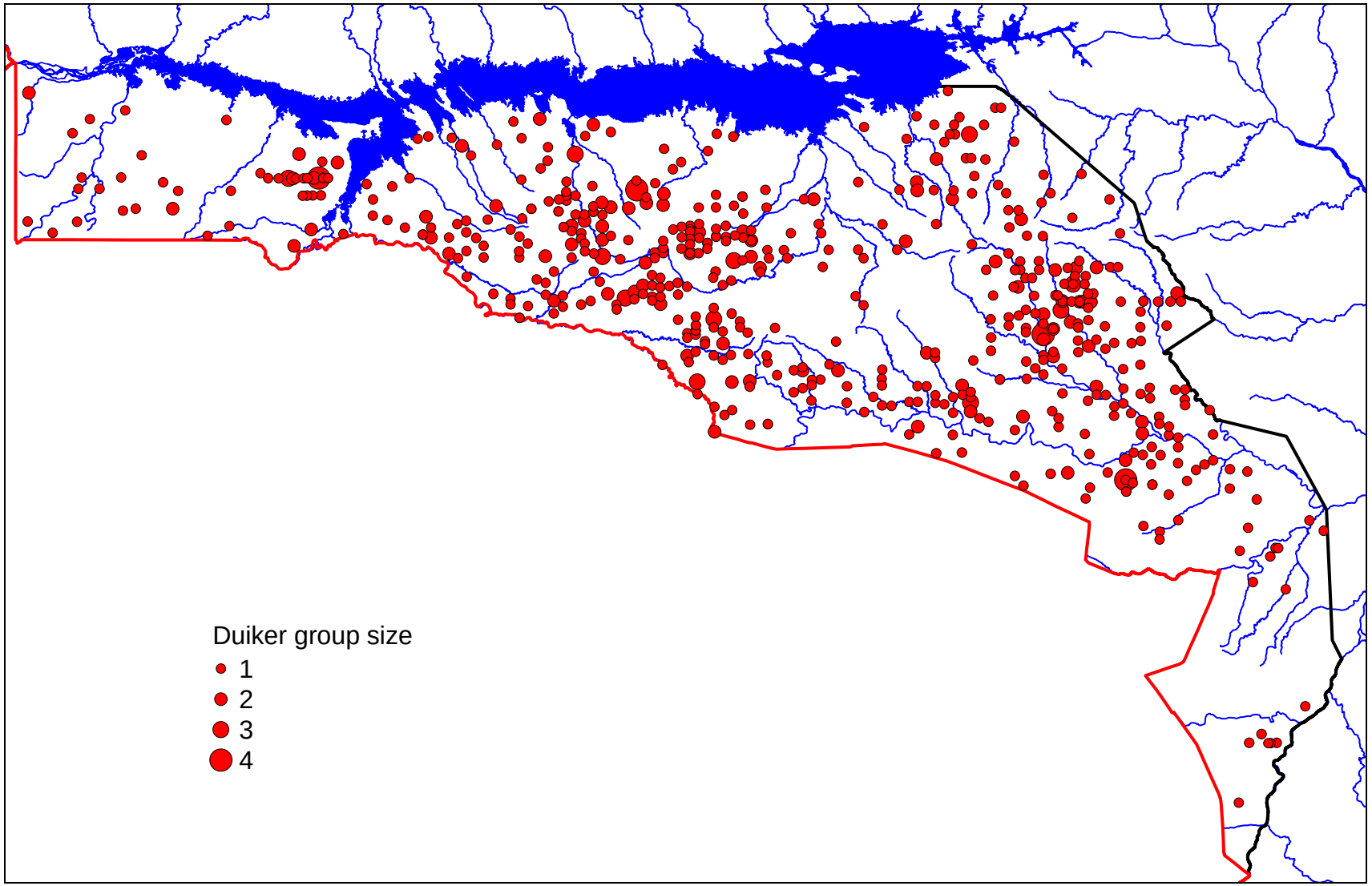
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	341	45	71853	171.1	0	925	0.46
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	341	45	71853	171.1	0	925	0.13
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	0	0	0	0.0	0	0	0.00
Totals	**341**	**45**	**71853**	**171.1**	**0**	**925**	**0.02**

Table 18. Population estimates and statistics for Roan south of Lake Cabora Bassa

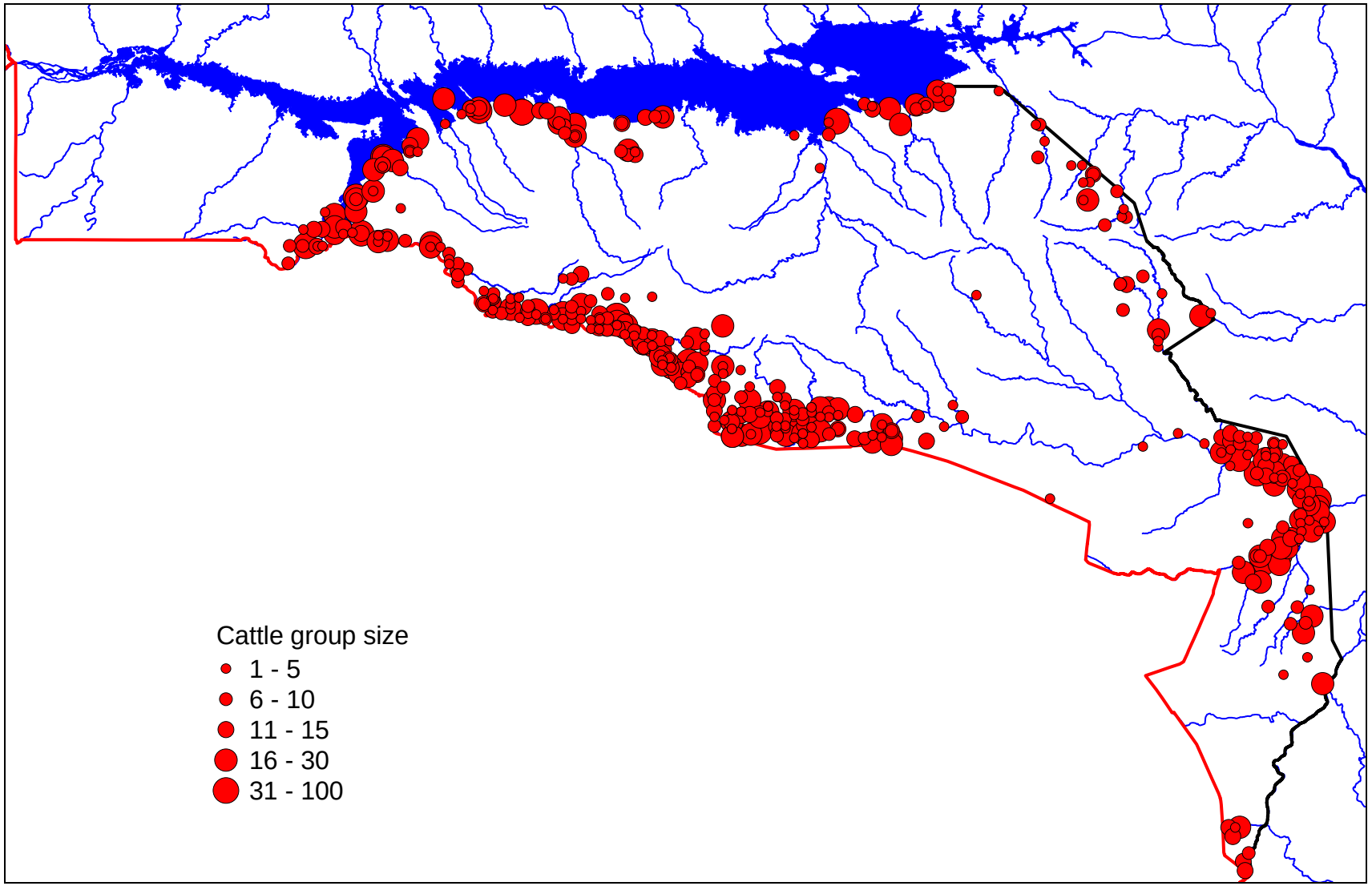
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	30	4	434	149.6	0	76	0.04
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	30	4	434	149.6	0	76	0.01
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	0	0	0	0.0	0	0	0.00
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	0	0	0	0.0	0	0	0.00
Totals	**30**	**4**	**434**	**149.6**	**0**	**76**	**0.002**

Table 19. Population estimates and statistics for Grey Duiker south of Lake Cabora Bassa

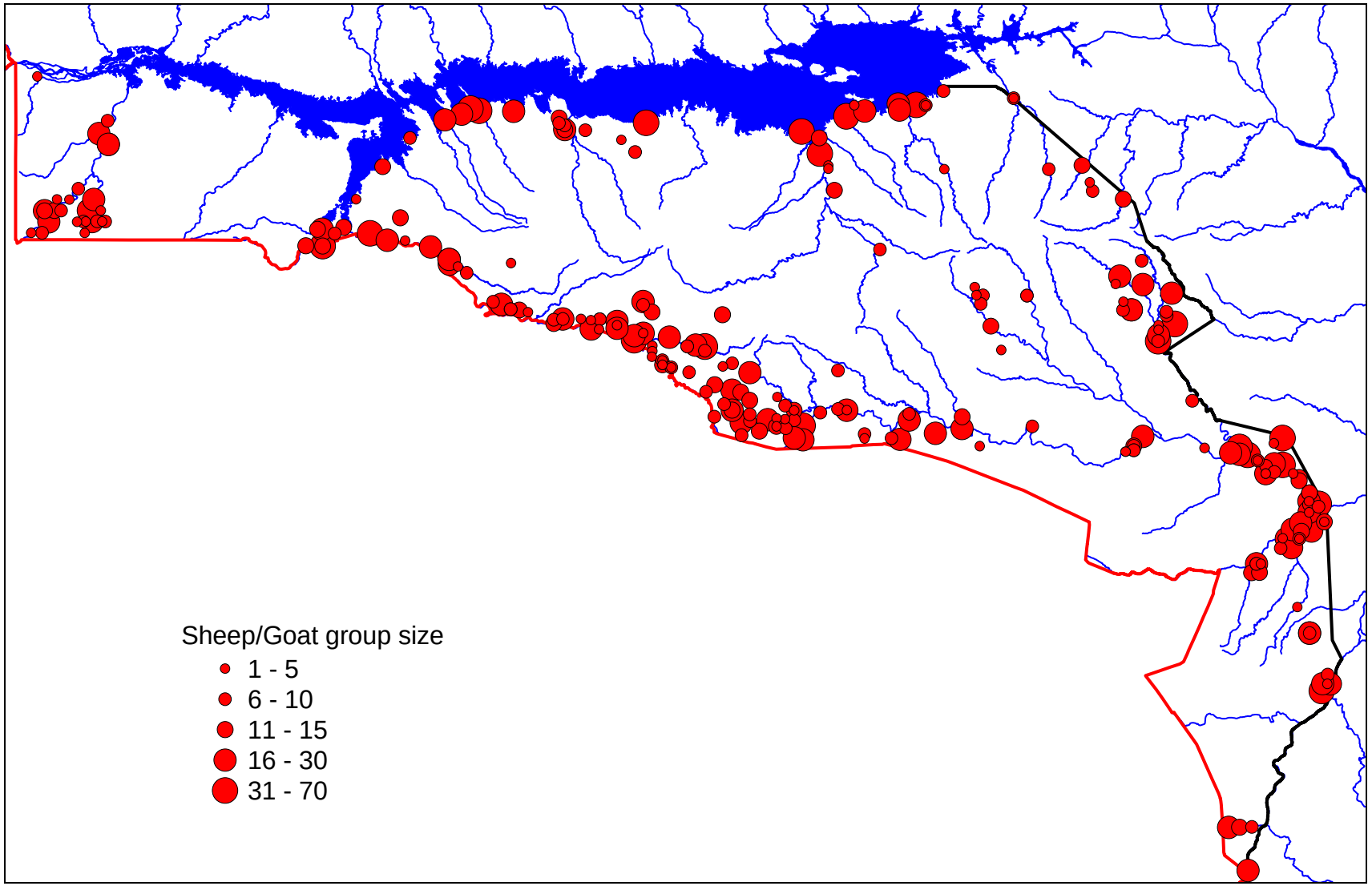
Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	30	4	249	116.4	0	64	0.09
Magoe 2	7	1	47	200.7	0	22	0.02
Magoe 3	25	2	798	313.3	0	103	0.19
Magoe 4	82	9	615	68.1	26	138	0.13
Magoe 5	76	10	477	62.8	28	123	0.10
Magoe 6	414	30	45687	126.4	0	937	1.06
Subtotals	634	56	47874	84.4	99	1169	0.24
East of Musengezi River							
Mukumbura 1	173	41	617	29.5	122	224	0.14
Mukumbura 2	223	53	756	25.3	166	279	0.27
Mphende	66	17	327	57.1	28	104	0.09
Mukumbura 3	354	92	1430	22.3	275	433	0.45
Mukumbura 4	241	59	797	24.6	181	300	0.32
Chintholo 2	172	43	578	28.9	122	221	0.20
Chitima 1	15	4	26	71.1	4	26	0.03
Chitima 3	65	16	222	50.8	32	99	0.13
Chitima 4	62	15	310	63.7	22	101	0.11
Chintholo 1	31	9	101	66.8	10	52	0.05
Chitima 2	221	53	909	28.1	159	284	0.19
Kachembe	182	43	4293	75.5	45	320	0.26
Chintholo 3	329	82	1805	26.5	242	416	0.26
Chintholo 4	154	40	756	37.1	97	211	0.16
Chipembere	176	47	1197	40.4	105	247	0.12
Luenha	51	13	263	64.0	18	84	0.06
Subtotals	2515	627	14388	9.4	2278	2752	0.18
Totals	**3149**	**683**	**62262**	**17.4**	**2600**	**3698**	**0.19**



Map 16. Distribution of grey duiker south of Lake Cabora Bassa during the 2010 dry season



Map 17. Distribution of cattle south of Lake Cabora Bassa during the 2010 dry season



Map 18. Distribution of sheep and goats south of Lake Cabora Bassa during the 2010 dry season

Table 20. Population estimates and statistics for Cattle south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	1973	143	1912156	171.5	0	5356	5.03
Subtotals	1973	143	1912156	171.5	0	5356	0.75
East of Musengezi River							
Mukumbura 1	3240	767	535062	46.4	1736	4744	2.65
Mukumbura 2	2815	670	207682	33.2	1881	3748	3.43
Mphende	424	109	19282	68.4	134	713	0.57
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	3133	768	769706	58.8	1290	4976	4.22
Chintholo 2	4521	1133	256390	23.1	3478	5564	5.16
Chitima 1	918	244	54364	53.2	430	1406	1.67
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	376	90	32738	99.1	3	749	0.31
Kachembe	496	117	23066	64.4	177	815	0.71
Chintholo 3	277	69	23846	114.5	0	594	0.22
Chintholo 4	350	91	28289	99.8	1	698	0.37
Chipembere	2356	629	348615	51.5	1142	3570	1.67
Luenha	2111	536	203841	43.2	1200	3022	2.25
Subtotals	21016	5223	2502881	14.9	17882	24149	1.51
Totals	**22988**	**5366**	**4415036**	**18.7**	**18691**	**27286**	**1.39**

Table 21. Population estimates and statistics for Sheep and Goat south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	104	14	5306	153.4	0	262	0.30
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	2472	270	836000	83.7	404	4540	3.77
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	1338	97	939720	177.3	0	3710	3.41
Subtotals	3913	381	1781027	73.1	1051	6776	1.49
East of Musengezi River							
Mukumbura 1	988	234	60099	51.0	484	1492	0.81
Mukumbura 2	1290	307	114242	53.7	597	1982	1.57
Mphende	245	63	17723	113.4	0	523	0.33
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	1346	330	113009	52.5	640	2052	1.81
Chintholo 2	1792	449	94447	35.3	1159	2425	2.04
Chitima 1	1068	284	94125	60.1	426	1710	1.95
Chitima 3	57	14	2461	193.4	0	168	0.11
Chitima 4	29	7	578	186.4	0	82	0.05
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	251	60	9152	78.6	54	448	0.21
Kachembe	449	106	16368	59.8	180	718	0.65
Chintholo 3	959	239	156189	84.6	148	1769	0.77
Chintholo 4	465	121	27370	73.8	122	808	0.49
Chipembere	2383	636	417441	55.8	1054	3711	1.68
Luenha	1689	429	160907	47.9	880	2499	1.80
Subtotals	13010	3279	1284109	17.2	10772	15249	0.93
Totals	**16924**	**3660**	**3065136**	**20.9**	**13383**	**20465**	**1.02**

Table 22. Population estimates and statistics for Donkey south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	0	0	0	0.0	0	0	0.00
East of Musengezi River							
Mukumbura 1	220	52	4043	59.5	89	350	0.18
Mukumbura 2	63	15	595	79.3	13	113	0.08
Mphende	16	4	173	176.4	0	43	0.02
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	33	8	431	133.7	0	76	0.04
Chintholo 2	116	29	1323	64.8	41	191	0.13
Chitima 1	192	51	10453	111.5	0	406	0.35
Chitima 3	4	1	13	195.7	0	12	0.008
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	75	18	1597	109.5	0	158	0.06
Kachembe	21	5	394	196.9	0	63	0.03
Chintholo 3	16	4	196	179.3	0	45	0.013
Chintholo 4	12	3	94	174.7	0	32	0.012
Chipembere	26	7	424	161.4	0	69	0.02
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	793	197	19737	35.5	512	1074	0.06
Totals	**793**	**197**	**19737**	**35.5**	**512**	**1074**	**0.05**

Table 23. Population estimates and statistics for Domestic Pig south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	0	0	0	0.0	0	0	0.00
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	0	0	0	0.0	0	0	0.00
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	0	0	0	0.0	0	0	0.00
East of Musengezi River							
Mukumbura 1	0	0	0	0.0	0	0	0.00
Mukumbura 2	13	3	139	191.5	0	37	0.02
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	114	28	1818	78.4	25	204	0.15
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	11	3	81	166.9	0	30	0.02
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	4	1	14	182.4	0	12	0.003
Kachembe	30	7	295	121.7	0	66	0.04
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	0	0	0	0.0	0	0	0.00
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	172	42	2347	57.6	73	271	0.012
Totals	**172**	**42**	**2347**	**57.6**	**73**	**271**	**0.010**

Table 24. Population estimates and statistics for Ground hornbill south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	0	0	0	0.0	0	0	0.00
Magoe 2	29	4	713	194.8	0	87	0.09
Magoe 3	0	0	0	0.0	0	0	0.00
Magoe 4	110	12	3540	122.5	0	244	0.17
Magoe 5	15	2	184	194.9	0	45	0.02
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	154	18	4437	93.2	11	298	0.06
East of Musengezi River							
Mukumbura 1	8	2	26	123.5	0	19	0.007
Mukumbura 2	25	6	296	139.7	0	60	0.03
Mphende	0	0	0	0.0	0	0	0.00
Mukumbura 3	8	2	44	180.7	0	22	0.01
Mukumbura 4	20	5	330	187.1	0	59	0.03
Chintholo 2	20	5	138	121.4	0	44	0.02
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	16	4	200	193.2	0	48	0.03
Chitima 4	8	2	47	186.8	0	24	0.02
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	13	3	125	184.9	0	36	0.02
Chintholo 3	12	3	110	178.9	0	34	0.01
Chintholo 4	19	5	111	114.0	0	41	0.02
Chipembere	15	4	60	106.5	0	31	0.01
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	165	41	1489	46.2	89	241	0.01
Totals	**320**	**59**	**5926**	**49.7**	**161**	**478**	**0.02**

Table 25. Population estimates and statistics for Crocodile south of Lake Cabora Bassa

Stratum	Estimate	No. Seen	Variance	% CI	Lower CL	Upper CL	Density (km^{-2})
West of Musengezi River (Magoe survey area)							
Magoe 1	44	6	1770	206.7	0	136	0.13
Magoe 2	294	40	8416	67.0	97	491	0.86
Magoe 3	250	20	46617	239.4	0	850	1.85
Magoe 4	27	3	727	222.1	0	88	0.04
Magoe 5	0	0	0	0.0	0	0	0.00
Magoe 6	0	0	0	0.0	0	0	0.00
Subtotals	616	69	57531	95.3	29	1203	0.24
East of Musengezi River							
Mukumbura 1	114	27	1934	79.3	24	204	0.09
Mukumbura 2	8	2	31	136.1	0	20	0.01
Mphende	4	1	11	175.1	0	11	0.005
Mukumbura 3	0	0	0	0.0	0	0	0.00
Mukumbura 4	0	0	0	0.0	0	0	0.00
Chintholo 2	0	0	0	0.0	0	0	0.00
Chitima 1	0	0	0	0.0	0	0	0.00
Chitima 3	0	0	0	0.0	0	0	0.00
Chitima 4	0	0	0	0.0	0	0	0.00
Chintholo 1	0	0	0	0.0	0	0	0.00
Chitima 2	0	0	0	0.0	0	0	0.00
Kachembe	0	0	0	0.0	0	0	0.00
Chintholo 3	0	0	0	0.0	0	0	0.00
Chintholo 4	4	1	11	175.4	0	11	0.004
Chipembere	0	0	0	0.0	0	0	0.00
Luenha	0	0	0	0.0	0	0	0.00
Subtotals	130	31	1987	70.3	39	222	0.009
Totals	**746**	**100**	**59517**	**80.0**	**149**	**1343**	**0.05**

Appendix 1. Calibration of strip width

For each run (i.e. flight over the calibration numbers):

- Strip width (in meters) for one observer = 10 x (1 + Difference between outer and inner);
- Combined strip width (in meters) at flying height = Left strip width + right strip width; and
- Combined strip width at 300 ft agl[1] = Actual combined strip width x 300 / (Flying height)

[1] agl: above ground level

Cessna 206 N206CE. Flown at Songo on 18 October 2010.

Run no.	Left observer: Greg Nyaguse			Right observer: David Chipesi			Combined strip width (m) at flying height	Flying height agl (ft)	Combined strip width (m) when flying at 300 ft
	Outer marker	Inner marker	Strip width (m)	Outer marker	Inner marker	Strip width (m)			
1	36	10	270	34	9	260	530	290	548
2	-	15		32	9	240	-	350	-
3	28	8	210	27	9	190	400	240	500
4	40	16	250	34	11	240	490	280	525
5	40	9	320	39	9	310	630	360	525
6	-	9		37	11	270	-	290	-
7	30	8	230	39	13	270	500	310	484
8	-	8		40	15	260	-	340	-
9	40	10	310	36	11	260	570	320	534
10	40	10	310	36	10	270	580	350	497
11	36	7	300	28	8?		-	320	-
12	31	9	230	30	10	210	440	320	413
13	38	7	320	30	9	220	540	320	506
14	30	9	220	34	9	260	480	320	450
15	38	7	320	32	8	250	570	330	518
16	36	4	330	37	15	230	560	360	467
17	30	7	240	32	10	230	470	320	441
18	34	5	300	30	9	220	520	320	488
19	37	7	310	30	10	210	520	340	459
20	37	9	290	31	10	220	510	330	464
21	23	6	180	25	8	180	360	260	415
22	12	6?		30	9	220	-	290	-
23	30	7	240	27	9	190	430	300	430
24	23	4	200	28	9	200	400	290	414
25	30	6	250	27	9	190	440	300	440
26	26	6	210	23	7	170	380	290	393
27	27	9	190	-	-		-	290	-
28	20	7	140	27	7	210	350	300	350
29	28	8	210	21	6	160	370	280	396
30	21	4	180	27	9	190	370	300	370
31	24	7	180	23	6	180	360	260	415
32	23	6	180	25	7	190	370	250	444
Mean combined strip width (in meters) when flying at 300 feet agl =									**457.2**
Standard error of mean combined strip width as a percentage of the mean									**2.3**

Cessna 185 N9630H. Flown at Songo on 30 October 2010.

Run no.	Left observer: Greg Nyaguse			Right observer: David Chipesi			Combined strip width (m) at flying height	Flying height agl (ft)	Combined strip width (m) when flying at 300 ft
	Outer marker	Inner marker	Strip width (m)	Outer marker	Inner marker	Strip width (m)			
1	41	8	340	32	11	220	560	320	525
2	27	8	200	25	7	190	390	250	468
3	30	8	230	30	11	200	430	300	430
4	31	9	230	30	8	230	460	280	493
5	30	8	230	30	10	210	440	310	426
6	31	9	230	31	9	230	460	300	460
7	28	7	220	29	7	230	450	300	450
8	30	9	220	31	9	230	450	300	450
9	28	8	210	30	10	210	420	300	420
10	32	10	230	30	8	230	460	300	460
11	31	8	240				-	290	-
12	21	5	170	30	9	220	390	220	532
13	30	8	230	26	8	190	420	280	450
14	27	8	200	30	8	230	430	260	496
15	25	8	180	31	10	220	400	300	400
16	31	7	250	27	9	190	440	250	528
17	29	7	230	28	9	200	430	280	461
18	31	10	220	34	11	240	460	350	394
19	40	10	310	36	10	270	580	350	497
20	37	10	280	31	9	230	510	320	478
21	37	8	300	34	10	250	550	340	485
22	36	12	250	30	8	230	480	330	436
23	31	9	230	29	8	220	450	310	435
24	36	12	250	38	10	290	540	360	450
25	36	10	270	25	7	190	460	320	431
26	36	12	250	32	9	240	490	350	420
27				26	8	190	-	270	-
28	34	12	230	24	9	160	390	300	390
29	28	12	170	26	9	180	350	260	404
30	36	16	210	18	1	180	390	280	418
Mean combined strip width (in meters) when flying at 300 feet agl =									**453.1**
Standard error of mean combined strip width as a percentage of the mean									**1.7**

Appendix 2. Survey flight summary

Date	Time take off	Time land	Flight time (hours)	Duty
Cessna 206 N206CE				
15-Oct-10			3.20	Positioning - Nampula to Songo
16-Oct-10	15:13	15:44	0.52	Calibration
18-Oct-10	13:14	15:08	1.90	Calibration
19-Oct-10	7:55	12:16	4.35	Stratum Mukumbura 1, transects 27-8
19-Oct-10	14:35	16:38	2.05	Stratum Kachembe, transects 1-16
20-Oct-10	7:52	12:20	4.47	Stratum Mukumbura 1, transects 7-1; stratum Mphende, transects 21-4
20-Oct-10	14:32	16:36	2.07	Stratum Chitima 2, transects 1-11
21-Oct-10	7:34	11:49	4.25	Stratum Mukumbura 2, transects 29-1
21-Oct-10	14:30	16:42	2.20	Stratum Chitima 2, transects 12-24
22-Oct-10	7:33	11:29	3.93	Stratum Mukumbura 3, transects 1-21; stratum Mphende, transects 3-1
23-Oct-10	6:48	10:11	3.38	Stratum Mukumbura 4, transects 20-2
23-Oct-10	14:34	16:12	1.63	Stratum Chitima 2, transects 25-26; stratum Kachembe, transects 20-17
25-Oct-10	7:34	11:12	3.63	Stratum Chintholo 2, transects 1-26
25-Oct-10	14:28	16:42	2.23	Stratum Chitima 3, transects 1-11
26-Oct-10	7:34	11:10	3.60	Stratum Chintholo 4, transects 1-23
26-Oct-10	14:26	16:37	2.18	Stratum Chitima 4, transects 1-11
27-Oct-10	7:53	10:23	2.50	Stratum Chitima 1, transects 1-20
28-Oct-10			3.30	Positioning - Songo to Nampula
		Subtotal	**51.40**	
Cessna 185 N9630H				
29-Oct-10			1.5	Positioning - western Magoe to Songo
30-Oct-10	6:25	6:50	0.42	Calibration
30-Oct-10	7:10	8:05	0.92	Calibration
30-Oct-10	9:05	10:36	1.52	Stratum Chintholo 3, transects 9-14
30-Oct-10	14:33	16:10	1.62	Stratum Chintholo 3, transects 15-20
31-Oct-10	6:46	9:57	3.18	Stratum Chipembere, transects 15-27
31-Oct-10	14:33	16:19	1.77	Stratum Chintholo 3, transects 21-28
01-Nov-10	6:45	10:21	3.60	Stratum Chipembere, transects 1-14
01-Nov-10	14:31	16:41	2.17	Stratum Chintholo 3, transects 1-8
02-Nov-10	6:51	10:50	3.98	Stratum Luenha, transects 1-24
02-Nov-10	14:44	16:45	2.02	Stratum Chintholo 1, transects 3-14
03-Nov-10	6:40	10:02	3.37	Stratum Luenha, transects 25-43
03-Nov-10	14:38	16:50	2.20	Stratum Chintholo 1, transects 15-23
04-Nov-10			1.5	Positioning - Songo to western Magoe
		Subtotal	**29.75**	
		Total	**81.15**	

Appendix 3. Transect start and end points, and lengths

Degrees and decimal minutes; datum WGS84

Mukumbura 1
Number of transects : 27
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1A
Start Lat : S 15 : 44.085 Start Lon : E 31 : 36.869
Finish Lat : S 15 : 44.197 Finish Lon : E 31 : 36.869
Length : 0.21 km

Transect # : 1B
Start Lat : S 15 : 44.361 Start Lon : E 31 : 36.869
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 36.869
Length : 24.07 km

Transect # : 2
Start Lat : S 15 : 57.360 Start Lon : E 31 : 35.748
Finish Lat : S 15 : 42.596 Finish Lon : E 31 : 35.748
Length : 27.34 km

Transect # : 3
Start Lat : S 15 : 41.811 Start Lon : E 31 : 34.627
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 34.627
Length : 28.79 km

Transect # : 4A
Start Lat : S 15 : 57.360 Start Lon : E 31 : 33.507
Finish Lat : S 15 : 43.584 Finish Lon : E 31 : 33.507
Length : 25.51 km

Transect # : 4B
Start Lat : S 15 : 43.137 Start Lon : E 31 : 33.507
Finish Lat : S 15 : 41.519 Finish Lon : E 31 : 33.507
Length : 3.00 km

Transect # : 5
Start Lat : S 15 : 43.150 Start Lon : E 31 : 32.386
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 32.386
Length : 26.31 km

Transect # : 6
Start Lat : S 15 : 57.360 Start Lon : E 31 : 31.265
Finish Lat : S 15 : 41.483 Finish Lon : E 31 : 31.265
Length : 29.40 km

Transect # : 7A
Start Lat : S 15 : 41.276 Start Lon : E 31 : 30.144
Finish Lat : S 15 : 41.288 Finish Lon : E 31 : 30.144
Length : 0.02 km

Transect # : 7B
Start Lat : S 15 : 42.292 Start Lon : E 31 : 30.144
Finish Lat : S 15 : 42.745 Finish Lon : E 31 : 30.144
Length : 0.84 km

Transect # : 7C
Start Lat : S 15 : 43.685 Start Lon : E 31 : 30.144
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 30.144
Length : 25.32 km

Transect # : 8
Start Lat : S 15 : 57.360 Start Lon : E 31 : 29.023
Finish Lat : S 15 : 43.541 Finish Lon : E 31 : 29.023
Length : 25.59 km

Transect # : 9
Start Lat : S 15 : 42.491 Start Lon : E 31 : 27.902
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 27.902
Length : 27.54 km

Transect # : 10
Start Lat : S 15 : 57.360 Start Lon : E 31 : 26.781
Finish Lat : S 15 : 41.876 Finish Lon : E 31 : 26.781
Length : 28.67 km

Transect # : 11
Start Lat : S 15 : 42.355 Start Lon : E 31 : 25.660
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 25.660
Length : 27.79 km

Transect # : 12
Start Lat : S 15 : 57.360 Start Lon : E 31 : 24.540
Finish Lat : S 15 : 43.003 Finish Lon : E 31 : 24.540
Length : 26.59 km

Transect # : 13
Start Lat : S 15 : 42.601 Start Lon : E 31 : 23.419
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 23.419
Length : 27.33 km

Transect # : 14
Start Lat : S 15 : 57.360 Start Lon : E 31 : 22.298
Finish Lat : S 15 : 42.966 Finish Lon : E 31 : 22.298
Length : 26.65 km

Transect # : 15
Start Lat : S 15 : 42.408 Start Lon : E 31 : 21.177
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 21.177
Length : 27.69 km

Transect # : 16A
Start Lat : S 15 : 57.360 Start Lon : E 31 : 20.056
Finish Lat : S 15 : 43.490 Finish Lon : E 31 : 20.056
Length : 25.69 km

Transect # : 16B
Start Lat : S 15 : 43.015 Start Lon : E 31 : 20.056
Finish Lat : S 15 : 40.297 Finish Lon : E 31 : 20.056
Length : 5.03 km

Transect # : 17A
Start Lat : S 15 : 41.683 Start Lon : E 31 : 18.935
Finish Lat : S 15 : 41.925 Finish Lon : E 31 : 18.935
Length : 0.45 km

Transect # : 17B
Start Lat : S 15 : 44.818 Start Lon : E 31 : 18.935
Finish Lat : S 15 : 44.911 Finish Lon : E 31 : 18.935
Length : 0.17 km

Transect # : 17C
Start Lat : S 15 : 45.353 Start Lon : E 31 : 18.935
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 18.935
Length : 22.23 km

Transect # : 18
Start Lat : S 15 : 57.360 Start Lon : E 31 : 17.814
Finish Lat : S 15 : 43.484 Finish Lon : E 31 : 17.814
Length : 25.70 km

Transect # : 19
Start Lat : S 15 : 42.752 Start Lon : E 31 : 16.693
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 16.693
Length : 27.05 km

Transect # : 20A
Start Lat : S 15 : 57.360 Start Lon : E 31 : 15.573
Finish Lat : S 15 : 46.462 Finish Lon : E 31 : 15.573
Length : 20.18 km

Transect # : 20B
Start Lat : S 15 : 44.489 Start Lon : E 31 : 15.573
Finish Lat : S 15 : 43.468 Finish Lon : E 31 : 15.573
Length : 1.89 km

Transect # : 21A
Start Lat : S 15 : 48.387 Start Lon : E 31 : 14.452
Finish Lat : S 15 : 48.559 Finish Lon : E 31 : 14.452
Length : 0.32 km

Transect # : 21B
Start Lat : S 15 : 48.805 Start Lon : E 31 : 14.452
Finish Lat : S 15 : 49.051 Finish Lon : E 31 : 14.452
Length : 0.46 km

Transect # : 21C
Start Lat : S 15 : 49.580 Start Lon : E 31 : 14.452
Finish Lat : S 15 : 49.643 Finish Lon : E 31 : 14.452
Length : 0.12 km

Transect # : 21D
Start Lat : S 15 : 50.278 Start Lon : E 31 : 14.452
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 14.452
Length : 13.11 km

Transect # : 22
Start Lat : S 15 : 57.360 Start Lon : E 31 : 13.331
Finish Lat : S 15 : 50.003 Finish Lon : E 31 : 13.331
Length : 13.62 km

Transect # : 23A
Start Lat : S 15 : 49.008 Start Lon : E 31 : 12.210
Finish Lat : S 15 : 49.190 Finish Lon : E 31 : 12.210
Length : 0.34 km

Transect # : 23B
Start Lat : S 15 : 49.468 Start Lon : E 31 : 12.210
Finish Lat : S 15 : 49.593 Finish Lon : E 31 : 12.210
Length : 0.23 km

Transect # : 23C
Start Lat : S 15 : 50.154 Start Lon : E 31 : 12.210
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 12.210
Length : 13.35 km

Transect # : 24
Start Lat : S 15 : 57.360 Start Lon : E 31 : 11.089
Finish Lat : S 15 : 51.205 Finish Lon : E 31 : 11.089
Length : 11.40 km

Transect # : 25
Start Lat : S 15 : 52.229 Start Lon : E 31 : 9.968
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 9.968
Length : 9.50 km

Transect # : 26A
Start Lat : S 15 : 57.360 Start Lon : E 31 : 8.847
Finish Lat : S 15 : 54.952 Finish Lon : E 31 : 8.847
Length : 4.46 km

Transect # : 26B
Start Lat : S 15 : 54.477 Start Lon : E 31 : 8.847
Finish Lat : S 15 : 54.264 Finish Lon : E 31 : 8.847
Length : 0.39 km

Transect # : 26C
Start Lat : S 15 : 54.181 Start Lon : E 31 : 8.847
Finish Lat : S 15 : 54.065 Finish Lon : E 31 : 8.847
Length : 0.21 km

Transect # : 27
Start Lat : S 15 : 57.197 Start Lon : E 31 : 7.727
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 7.727
Length : 0.30 km

Mukumbura 2
Number of transects : 29
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 57.360 Start Lon : E 31 : 37.574
Finish Lat : S 16 : 10.810 Finish Lon : E 31 : 37.574
Length : 24.91 km

Transect # : 2
Start Lat : S 16 : 11.104 Start Lon : E 31 : 36.452
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 36.452
Length : 25.45 km

Transect # : 3
Start Lat : S 15 : 57.360 Start Lon : E 31 : 35.330
Finish Lat : S 16 : 10.757 Finish Lon : E 31 : 35.330
Length : 24.81 km

Transect # : 4
Start Lat : S 16 : 10.867 Start Lon : E 31 : 34.208
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 34.208
Length : 25.01 km

Transect # : 5
Start Lat : S 15 : 57.360 Start Lon : E 31 : 33.085
Finish Lat : S 16 : 10.526 Finish Lon : E 31 : 33.085
Length : 24.38 km

Transect # : 6
Start Lat : S 16 : 10.196 Start Lon : E 31 : 31.963
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 31.963
Length : 23.77 km

Transect # : 7
Start Lat : S 15 : 57.360 Start Lon : E 31 : 30.841
Finish Lat : S 16 : 9.848 Finish Lon : E 31 : 30.841
Length : 23.13 km

Transect # : 8
Start Lat : S 16 : 9.996 Start Lon : E 31 : 29.719
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 29.719
Length : 23.40 km

Transect # : 9
Start Lat : S 15 : 57.360 Start Lon : E 31 : 28.597
Finish Lat : S 16 : 9.481 Finish Lon : E 31 : 28.597
Length : 22.45 km

Transect # : 10
Start Lat : S 16 : 9.547 Start Lon : E 31 : 27.475
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 27.475
Length : 22.57 km

Transect # : 11
Start Lat : S 15 : 57.360 Start Lon : E 31 : 26.353
Finish Lat : S 16 : 9.357 Finish Lon : E 31 : 26.353
Length : 22.22 km

Transect # : 12
Start Lat : S 16 : 8.095 Start Lon : E 31 : 25.231
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 25.231
Length : 19.88 km

Transect # : 13A
Start Lat : S 15 : 57.360 Start Lon : E 31 : 24.109
Finish Lat : S 16 : 7.312 Finish Lon : E 31 : 24.109
Length : 18.43 km

Transect # : 13B
Start Lat : S 16 : 7.802 Start Lon : E 31 : 24.109
Finish Lat : S 16 : 8.075 Finish Lon : E 31 : 24.109
Length : 0.51 km

Transect # : 14
Start Lat : S 16 : 6.144 Start Lon : E 31 : 22.987
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 22.987
Length : 16.27 km

Transect # : 15
Start Lat : S 15 : 57.360 Start Lon : E 31 : 21.865
Finish Lat : S 16 : 5.240 Finish Lon : E 31 : 21.865
Length : 14.59 km

Transect # : 16
Start Lat : S 16 : 4.430 Start Lon : E 31 : 20.743
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 20.743
Length : 13.09 km

Transect # : 17
Start Lat : S 15 : 57.360 Start Lon : E 31 : 19.620
Finish Lat : S 16 : 2.475 Finish Lon : E 31 : 19.620
Length : 9.47 km

Transect # : 18
Start Lat : S 16 : 1.175 Start Lon : E 31 : 18.498
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 18.498
Length : 7.07 km

Transect # : 19
Start Lat : S 15 : 57.360 Start Lon : E 31 : 17.376
Finish Lat : S 16 : 1.166 Finish Lon : E 31 : 17.376
Length : 7.05 km

Transect # : 20
Start Lat : S 16 : 0.541 Start Lon : E 31 : 16.254
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 16.254
Length : 5.89 km

Transect # : 21
Start Lat : S 15 : 57.360 Start Lon : E 31 : 15.132
Finish Lat : S 16 : 0.739 Finish Lon : E 31 : 15.132
Length : 6.26 km

Transect # : 22
Start Lat : S 16 : 0.246 Start Lon : E 31 : 14.010
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 14.010
Length : 5.34 km

Transect # : 23
Start Lat : S 15 : 57.360 Start Lon : E 31 : 12.888
Finish Lat : S 16 : 0.531 Finish Lon : E 31 : 12.888
Length : 5.87 km

Transect # : 24
Start Lat : S 16 : 0.347 Start Lon : E 31 : 11.766
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 11.766
Length : 5.53 km

Transect # : 25
Start Lat : S 15 : 57.360 Start Lon : E 31 : 10.644
Finish Lat : S 15 : 59.340 Finish Lon : E 31 : 10.644
Length : 3.67 km

Transect # : 26
Start Lat : S 15 : 59.368 Start Lon : E 31 : 9.522
Finish Lat : S 15 : 57.360 Finish Lon : E 31 : 9.522
Length : 3.72 km

Transect # : 27
Start Lat : S 15 : 57.360 Start Lon : E 31 : 8.400
Finish Lat : S 15 : 59.346 Finish Lon : E 31 : 8.400
Length : 3.68 km

Transect # : 28
Start Lat : S 15 : 59.673 Start Lon : E 31 : 7.277
Finish Lat : S 15 : 57.087 Finish Lon : E 31 : 7.277
Length : 4.79 km

Transect # : 29
Start Lat : S 15 : 56.102 Start Lon : E 31 : 6.155
Finish Lat : S 15 : 59.702 Finish Lon : E 31 : 6.155
Length : 6.67 km

Mphende
Number of transects : 21
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 44.995 Start Lon : E 32 : 0.506
Finish Lat : S 15 : 53.760 Finish Lon : E 32 : 0.506
Length : 16.23 km

Transect # : 2
Start Lat : S 15 : 53.760 Start Lon : E 31 : 59.384
Finish Lat : S 15 : 45.752 Finish Lon : E 31 : 59.384
Length : 14.77 km

Transect # : 3
Start Lat : S 15 : 46.319 Start Lon : E 31 : 58.263
Finish Lat : S 15 : 53.379 Finish Lon : E 31 : 58.263
Length : 13.02 km

Transect # : 4
Start Lat : S 15 : 53.760 Start Lon : E 31 : 57.142
Finish Lat : S 15 : 43.828 Finish Lon : E 31 : 57.142
Length : 18.39 km

Transect # : 5
Start Lat : S 15 : 43.959 Start Lon : E 31 : 56.021
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 56.021
Length : 18.15 km

Transect # : 6
Start Lat : S 15 : 53.760 Start Lon : E 31 : 54.900
Finish Lat : S 15 : 43.624 Finish Lon : E 31 : 54.900
Length : 18.77 km

Transect # : 7A
Start Lat : S 15 : 42.540 Start Lon : E 31 : 53.779
Finish Lat : S 15 : 42.695 Finish Lon : E 31 : 53.779
Length : 0.29 km

Transect # : 7B
Start Lat : S 15 : 42.920 Start Lon : E 31 : 53.779
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 53.779
Length : 20.07 km

Transect # : 8
Start Lat : S 15 : 53.760 Start Lon : E 31 : 52.657
Finish Lat : S 15 : 42.639 Finish Lon : E 31 : 52.657
Length : 20.60 km

Transect # : 9
Start Lat : S 15 : 43.347 Start Lon : E 31 : 51.536
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 51.536
Length : 19.28 km

Transect # : 10
Start Lat : S 15 : 53.760 Start Lon : E 31 : 50.415
Finish Lat : S 15 : 42.987 Finish Lon : E 31 : 50.415
Length : 19.95 km

Transect # : 11A
Start Lat : S 15 : 42.871 Start Lon : E 31 : 49.294
Finish Lat : S 15 : 43.208 Finish Lon : E 31 : 49.294
Length : 0.62 km

Transect # : 11B
Start Lat : S 15 : 43.574 Start Lon : E 31 : 49.294
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 49.294
Length : 18.86 km

Transect # : 12A
Start Lat : S 15 : 53.760 Start Lon : E 31 : 48.173
Finish Lat : S 15 : 44.181 Finish Lon : E 31 : 48.173
Length : 17.74 km

Transect # : 12B
Start Lat : S 15 : 44.086 Start Lon : E 31 : 48.173
Finish Lat : S 15 : 43.935 Finish Lon : E 31 : 48.173
Length : 0.28 km

Transect # : 13
Start Lat : S 15 : 43.853 Start Lon : E 31 : 47.052
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 47.052
Length : 18.35 km

Transect # : 14
Start Lat : S 15 : 53.760 Start Lon : E 31 : 45.930
Finish Lat : S 15 : 44.319 Finish Lon : E 31 : 45.930
Length : 17.48 km

Transect # : 15
Start Lat : S 15 : 44.974 Start Lon : E 31 : 44.809
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 44.809
Length : 16.27 km

Transect # : 16
Start Lat : S 15 : 53.760 Start Lon : E 31 : 43.688
Finish Lat : S 15 : 45.325 Finish Lon : E 31 : 43.688
Length : 15.62 km

Transect # : 17
Start Lat : S 15 : 45.008 Start Lon : E 31 : 42.567
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 42.567
Length : 16.21 km

Transect # : 18
Start Lat : S 15 : 53.760 Start Lon : E 31 : 41.446
Finish Lat : S 15 : 44.544 Finish Lon : E 31 : 41.446
Length : 17.07 km

Transect # : 19
Start Lat : S 15 : 44.078 Start Lon : E 31 : 40.325
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 40.325
Length : 17.93 km

Transect # : 20
Start Lat : S 15 : 53.760 Start Lon : E 31 : 39.203
Finish Lat : S 15 : 44.425 Finish Lon : E 31 : 39.203
Length : 17.29 km

Transect # : 21
Start Lat : S 15 : 44.011 Start Lon : E 31 : 38.082
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 38.082
Length : 18.05 km

Mukumbura 3

Number of transects : 21
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 53.760 Start Lon : E 32 : 0.572
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 0.572
Length : 19.33 km

Transect # : 2
Start Lat : S 16 : 4.200 Start Lon : E 31 : 59.450
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 59.450
Length : 19.33 km

Transect # : 3
Start Lat : S 15 : 53.760 Start Lon : E 31 : 58.327
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 58.327
Length : 19.33 km

Transect # : 4
Start Lat : S 16 : 4.200 Start Lon : E 31 : 57.205
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 57.205
Length : 19.33 km

Transect # : 5
Start Lat : S 15 : 53.760 Start Lon : E 31 : 56.083
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 56.083
Length : 19.33 km

Transect # : 6
Start Lat : S 16 : 4.200 Start Lon : E 31 : 54.961
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 54.961
Length : 19.33 km

Transect # : 7
Start Lat : S 15 : 53.760 Start Lon : E 31 : 53.839
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 53.839
Length : 19.33 km

Transect # : 8
Start Lat : S 16 : 4.200 Start Lon : E 31 : 52.717
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 52.717
Length : 19.33 km

Transect # : 9
Start Lat : S 15 : 53.760 Start Lon : E 31 : 51.594
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 51.594
Length : 19.33 km

Transect # : 10
Start Lat : S 16 : 4.200 Start Lon : E 31 : 50.472
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 50.472
Length : 19.33 km

Transect # : 11
Start Lat : S 15 : 53.760 Start Lon : E 31 : 49.350
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 49.350
Length : 19.33 km

Transect # : 12
Start Lat : S 16 : 4.200 Start Lon : E 31 : 48.228
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 48.228
Length : 19.33 km

Transect # : 13
Start Lat : S 15 : 53.760 Start Lon : E 31 : 47.106
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 47.106
Length : 19.33 km

Transect # : 14
Start Lat : S 16 : 4.200 Start Lon : E 31 : 45.983
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 45.983
Length : 19.33 km

Transect # : 15
Start Lat : S 15 : 53.760 Start Lon : E 31 : 44.861
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 44.861
Length : 19.33 km

Transect # : 16
Start Lat : S 16 : 4.200 Start Lon : E 31 : 43.739
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 43.739
Length : 19.33 km

Transect # : 17
Start Lat : S 15 : 53.760 Start Lon : E 31 : 42.617
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 42.617
Length : 19.33 km

Transect # : 18
Start Lat : S 16 : 4.200 Start Lon : E 31 : 41.495
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 41.495
Length : 19.33 km

Transect # : 19
Start Lat : S 15 : 53.760 Start Lon : E 31 : 40.373
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 40.373
Length : 19.33 km

Transect # : 20
Start Lat : S 16 : 4.200 Start Lon : E 31 : 39.250
Finish Lat : S 15 : 53.760 Finish Lon : E 31 : 39.250
Length : 19.33 km

Transect # : 21
Start Lat : S 15 : 53.760 Start Lon : E 31 : 38.128
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 38.128
Length : 19.33 km

Mukumbura 4
Number of transects : 20
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 4.200 Start Lon : E 32 : 0.188
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 0.188
Length : 20.00 km – Not

Transect # : 2
Start Lat : S 16 : 15.000 Start Lon : E 31 : 59.065
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 59.065
Length : 20.00 km

Transect # : 3
Start Lat : S 16 : 4.200 Start Lon : E 31 : 57.942
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 57.942
Length : 20.00 km

Transect # : 4
Start Lat : S 16 : 15.000 Start Lon : E 31 : 56.819
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 56.819
Length : 20.00 km

Transect # : 5
Start Lat : S 16 : 4.200 Start Lon : E 31 : 55.696
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 55.696
Length : 20.00 km

Transect # : 6
Start Lat : S 16 : 15.000 Start Lon : E 31 : 54.573
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 54.573
Length : 20.00 km

Transect # : 7
Start Lat : S 16 : 4.200 Start Lon : E 31 : 53.450
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 53.450
Length : 20.00 km

Transect # : 8
Start Lat : S 16 : 15.000 Start Lon : E 31 : 52.326
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 52.326
Length : 20.00 km

Transect # : 9
Start Lat : S 16 : 4.200 Start Lon : E 31 : 51.203
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 51.203
Length : 20.00 km

Transect # : 10
Start Lat : S 16 : 15.000 Start Lon : E 31 : 50.080
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 50.080
Length : 20.00 km

Transect # : 11
Start Lat : S 16 : 4.200 Start Lon : E 31 : 48.957
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 48.957
Length : 20.00 km

Transect # : 12
Start Lat : S 16 : 15.000 Start Lon : E 31 : 47.834
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 47.834
Length : 20.00 km

Transect # : 13
Start Lat : S 16 : 4.200 Start Lon : E 31 : 46.711
Finish Lat : S 16 : 14.333 Finish Lon : E 31 : 46.711
Length : 18.76 km

Transect # : 14
Start Lat : S 16 : 13.790 Start Lon : E 31 : 45.587
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 45.587
Length : 17.76 km

Transect # : 15
Start Lat : S 16 : 4.200 Start Lon : E 31 : 44.464
Finish Lat : S 16 : 13.377 Finish Lon : E 31 : 44.464
Length : 17.00 km

Transect # : 16
Start Lat : S 16 : 12.411 Start Lon : E 31 : 43.341
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 43.341
Length : 15.21 km

Transect # : 17
Start Lat : S 16 : 4.200 Start Lon : E 31 : 42.218
Finish Lat : S 16 : 11.983 Finish Lon : E 31 : 42.218
Length : 14.41 km

Transect # : 18
Start Lat : S 16 : 11.829 Start Lon : E 31 : 41.095
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 41.095
Length : 14.13 km

Transect # : 19
Start Lat : S 16 : 4.200 Start Lon : E 31 : 39.972
Finish Lat : S 16 : 11.443 Finish Lon : E 31 : 39.972
Length : 13.41 km

Transect # : 20
Start Lat : S 16 : 11.661 Start Lon : E 31 : 38.848
Finish Lat : S 16 : 4.200 Finish Lon : E 31 : 38.848
Length : 13.82 km

Chintholo 2
Number of transects : 26
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 15.000 Start Lon : E 32 : 16.116
Finish Lat : S 16 : 25.972 Finish Lon : E 32 : 16.116
Length : 20.32 km

Transect # : 2
Start Lat : S 16 : 26.034 Start Lon : E 32 : 14.992
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 14.992
Length : 20.43 km

Transect # : 3
Start Lat : S 16 : 15.000 Start Lon : E 32 : 13.868
Finish Lat : S 16 : 26.092 Finish Lon : E 32 : 13.868
Length : 20.54 km

Transect # : 4
Start Lat : S 16 : 26.149 Start Lon : E 32 : 12.744
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 12.744
Length : 20.65 km

Transect # : 5
Start Lat : S 16 : 15.000 Start Lon : E 32 : 11.621
Finish Lat : S 16 : 25.408 Finish Lon : E 32 : 11.621
Length : 19.19 km

Transect # : 6
Start Lat : S 16 : 25.268 Start Lon : E 32 : 10.497
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 10.497
Length : 18.93 km

Transect # : 7
Start Lat : S 16 : 15.000 Start Lon : E 32 : 9.373
Finish Lat : S 16 : 24.869 Finish Lon : E 32 : 9.373
Length : 18.20 km

Transect # : 8
Start Lat : S 16 : 24.909 Start Lon : E 32 : 8.249
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 8.249
Length : 18.27 km

Transect # : 9
Start Lat : S 16 : 15.000 Start Lon : E 32 : 7.125
Finish Lat : S 16 : 26.148 Finish Lon : E 32 : 7.125
Length : 20.55 km

Transect # : 10
Start Lat : S 16 : 26.188 Start Lon : E 32 : 6.001
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 6.001
Length : 20.63 km

Transect # : 11
Start Lat : S 16 : 15.000 Start Lon : E 32 : 4.877
Finish Lat : S 16 : 25.468 Finish Lon : E 32 : 4.877
Length : 19.30 km

Transect # : 12
Start Lat : S 16 : 25.208 Start Lon : E 32 : 3.753
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 3.753
Length : 18.82 km

Transect # : 13
Start Lat : S 16 : 15.000 Start Lon : E 32 : 2.630
Finish Lat : S 16 : 25.089 Finish Lon : E 32 : 2.630
Length : 18.60 km

Transect # : 14
Start Lat : S 16 : 24.669 Start Lon : E 32 : 1.506
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 1.506
Length : 17.83 km

Transect # : 15
Start Lat : S 16 : 15.000 Start Lon : E 32 : 0.382
Finish Lat : S 16 : 25.109 Finish Lon : E 32 : 0.382
Length : 18.64 km

Transect # : 16
Start Lat : S 16 : 24.909 Start Lon : E 31 : 59.258
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 59.258
Length : 18.27 km

Transect # : 17
Start Lat : S 16 : 15.000 Start Lon : E 31 : 58.134
Finish Lat : S 16 : 25.459 Finish Lon : E 31 : 58.134
Length : 19.37 km

Transect # : 18
Start Lat : S 16 : 25.175 Start Lon : E 31 : 57.010
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 57.010
Length : 18.84 km

Transect # : 19
Start Lat : S 16 : 15.000 Start Lon : E 31 : 55.887
Finish Lat : S 16 : 24.870 Finish Lon : E 31 : 55.887
Length : 18.28 km

Transect # : 20
Start Lat : S 16 : 24.494 Start Lon : E 31 : 54.763
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 54.763
Length : 17.58 km

Transect # : 21
Start Lat : S 16 : 15.000 Start Lon : E 31 : 53.639
Finish Lat : S 16 : 20.253 Finish Lon : E 31 : 53.639
Length : 9.73 km

Transect # : 22
Start Lat : S 16 : 19.569 Start Lon : E 31 : 52.515
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 52.515
Length : 8.46 km

Transect # : 23
Start Lat : S 16 : 15.000 Start Lon : E 31 : 51.391
Finish Lat : S 16 : 18.860 Finish Lon : E 31 : 51.391
Length : 7.15 km

Transect # : 24
Start Lat : S 16 : 18.256 Start Lon : E 31 : 50.267
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 50.267
Length : 6.03 km

Transect # : 25A
Start Lat : S 16 : 15.000 Start Lon : E 31 : 49.143
Finish Lat : S 16 : 16.859 Finish Lon : E 31 : 49.143
Length : 3.44 km

Transect # : 25B
Start Lat : S 16 : 17.227 Start Lon : E 31 : 49.143
Finish Lat : S 16 : 17.416 Finish Lon : E 31 : 49.143
Length : 0.35 km

Transect # : 26
Start Lat : S 16 : 16.072 Start Lon : E 31 : 48.020
Finish Lat : S 16 : 15.000 Finish Lon : E 31 : 48.020
Length : 1.99 km

Chitima 1
Number of transects : 20
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 41.005 Start Lon : E 32 : 22.744
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 22.744
Length : 19.62 km

Transect # : 2
Start Lat : S 15 : 51.600 Start Lon : E 32 : 21.623
Finish Lat : S 15 : 41.459 Finish Lon : E 32 : 21.623
Length : 18.78 km

Transect # : 3
Start Lat : S 15 : 41.538 Start Lon : E 32 : 20.502
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 20.502
Length : 18.63 km

Transect # : 4
Start Lat : S 15 : 51.600 Start Lon : E 32 : 19.381
Finish Lat : S 15 : 43.282 Finish Lon : E 32 : 19.381
Length : 15.40 km

Transect # : 5
Start Lat : S 15 : 42.634 Start Lon : E 32 : 18.260
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 18.260
Length : 16.60 km

Transect # : 6A
Start Lat : S 15 : 51.600 Start Lon : E 32 : 17.138
Finish Lat : S 15 : 42.555 Finish Lon : E 32 : 17.138
Length : 16.75 km

Transect # : 6B
Start Lat : S 15 : 42.525 Start Lon : E 32 : 17.138
Finish Lat : S 15 : 42.395 Finish Lon : E 32 : 17.138
Length : 0.24 km

Transect # : 6C
Start Lat : S 15 : 42.353 Start Lon : E 32 : 17.138
Finish Lat : S 15 : 42.034 Finish Lon : E 32 : 17.138
Length : 0.59 km

Transect # : 7
Start Lat : S 15 : 42.943 Start Lon : E 32 : 16.017
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 16.017
Length : 16.03 km

Transect # : 8
Start Lat : S 15 : 51.600 Start Lon : E 32 : 14.896
Finish Lat : S 15 : 41.922 Finish Lon : E 32 : 14.896
Length : 17.92 km
Transect # : 9
Start Lat : S 15 : 41.982 Start Lon : E 32 : 13.775
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 13.775
Length : 17.81 km

Transect # : 10A
Start Lat : S 15 : 51.600 Start Lon : E 32 : 12.654
Finish Lat : S 15 : 43.639 Finish Lon : E 32 : 12.654
Length : 14.74 km

Transect # : 10B
Start Lat : S 15 : 42.266 Start Lon : E 32 : 12.654
Finish Lat : S 15 : 41.293 Finish Lon : E 32 : 12.654
Length : 1.80 km

Transect # : 11A
Start Lat : S 15 : 41.426 Start Lon : E 32 : 11.533
Finish Lat : S 15 : 42.020 Finish Lon : E 32 : 11.533
Length : 1.10 km

Transect # : 11B
Start Lat : S 15 : 42.887 Start Lon : E 32 : 11.533
Finish Lat : S 15 : 45.720 Finish Lon : E 32 : 11.533
Length : 5.22 km

Transect # : 12
Start Lat : S 15 : 45.468 Start Lon : E 32 : 10.412
Finish Lat : S 15 : 44.365 Finish Lon : E 32 : 10.412
Length : 2.03 km

Transect # : 13
Start Lat : S 15 : 45.322 Start Lon : E 32 : 9.291
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 9.291
Length : 11.63 km

Transect # : 14
Start Lat : S 15 : 51.600 Start Lon : E 32 : 8.170
Finish Lat : S 15 : 46.531 Finish Lon : E 32 : 8.170
Length : 9.39 km

Transect # : 15
Start Lat : S 15 : 47.482 Start Lon : E 32 : 7.049
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 7.049
Length : 7.63 km

Transect # : 16
Start Lat : S 15 : 51.600 Start Lon : E 32 : 5.928
Finish Lat : S 15 : 46.313 Finish Lon : E 32 : 5.928
Length : 9.79 km
Transect # : 17
Start Lat : S 15 : 46.263 Start Lon : E 32 : 4.807
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 4.807
Length : 9.88 km

Transect # : 18A

Start Lat : S 15 : 51.600 Start Lon : E 32 : 3.686
Finish Lat : S 15 : 45.332 Finish Lon : E 32 : 3.686
Length : 11.61 km

Transect # : 18B
Start Lat : S 15 : 44.927 Start Lon : E 32 : 3.686
Finish Lat : S 15 : 44.721 Finish Lon : E 32 : 3.686
Length : 0.38 km

Transect # : 19
Start Lat : S 15 : 45.415 Start Lon : E 32 : 2.565
Finish Lat : S 15 : 51.600 Finish Lon : E 32 : 2.565
Length : 11.45 km

Transect # : 20
Start Lat : S 15 : 51.600 Start Lon : E 32 : 1.444
Finish Lat : S 15 : 44.831 Finish Lon : E 32 : 1.444
Length : 12.54 km

Chintholo 1
Number of transects : 23
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 4.200 Start Lon : E 32 : 26.055
Finish Lat : S 16 : 18.140 Finish Lon : E 32 : 26.055
Length : 25.82 km - Not flown

Transect # : 2
Start Lat : S 16 : 17.771 Start Lon : E 32 : 24.931
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 24.931
Length : 25.13 km – Not flown

Transect # : 3
Start Lat : S 16 : 15.276 Start Lon : E 32 : 23.808
Finish Lat : S 16 : 17.402 Finish Lon : E 32 : 23.808
Length : 3.91 km

Transect # : 4
Start Lat : S 16 : 17.033 Start Lon : E 32 : 22.685
Finish Lat : S 16 : 12.056 Finish Lon : E 32 : 22.685
Length : 9.18 km

Transect # : 5
Start Lat : S 16 : 11.963 Start Lon : E 32 : 21.562
Finish Lat : S 16 : 16.664 Finish Lon : E 32 : 21.562
Length : 8.67 km

Transect # : 6
Start Lat : S 16 : 16.295 Start Lon : E 32 : 20.439
Finish Lat : S 16 : 9.922 Finish Lon : E 32 : 20.439
Length : 11.75 km

Transect # : 7
Start Lat : S 16 : 10.224 Start Lon : E 32 : 19.316
Finish Lat : S 16 : 15.925 Finish Lon : E 32 : 19.316
Length : 10.51 km

Transect # : 8
Start Lat : S 16 : 15.556 Start Lon : E 32 : 18.192
Finish Lat : S 16 : 7.835 Finish Lon : E 32 : 18.192
Length : 14.24 km

Transect # : 9
Start Lat : S 16 : 7.580 Start Lon : E 32 : 17.069
Finish Lat : S 16 : 15.187 Finish Lon : E 32 : 17.069
Length : 14.03 km

Transect # : 10
Start Lat : S 16 : 15.000 Start Lon : E 32 : 15.946
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 15.946
Length : 20.00 km

Transect # : 11
Start Lat : S 16 : 4.200 Start Lon : E 32 : 14.823
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 14.823
Length : 20.00 km

Transect # : 12
Start Lat : S 16 : 15.000 Start Lon : E 32 : 13.700
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 13.700
Length : 20.00 km

Transect # : 13
Start Lat : S 16 : 5.052 Start Lon : E 32 : 12.577
Finish Lat : S 16 : 10.943 Finish Lon : E 32 : 12.577
Length : 10.86 km

Transect # : 14
Start Lat : S 16 : 15.000 Start Lon : E 32 : 11.453
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 11.453
Length : 20.00 km

Transect # : 15
Start Lat : S 16 : 4.200 Start Lon : E 32 : 10.330
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 10.330
Length : 20.00 km

Transect # : 16
Start Lat : S 16 : 15.000 Start Lon : E 32 : 9.207
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 9.207
Length : 20.00 km

Transect # : 17
Start Lat : S 16 : 4.200 Start Lon : E 32 : 8.084
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 8.084
Length : 20.00 km

Transect # : 18
Start Lat : S 16 : 15.000 Start Lon : E 32 : 6.961
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 6.961
Length : 20.00 km

Transect # : 19
Start Lat : S 16 : 4.200 Start Lon : E 32 : 5.837
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 5.837
Length : 20.00 km

Transect # : 20
Start Lat : S 16 : 15.000 Start Lon : E 32 : 4.714
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 4.714

Length : 20.00 km

Transect # : 21
Start Lat : S 16 : 4.200 Start Lon : E 32 : 3.591
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 3.591
Length : 20.00 km

Transect # : 22
Start Lat : S 16 : 15.000 Start Lon : E 32 : 2.468
Finish Lat : S 16 : 4.200 Finish Lon : E 32 : 2.468
Length : 20.00 km

Transect # : 23
Start Lat : S 16 : 4.200 Start Lon : E 32 : 1.345
Finish Lat : S 16 : 15.000 Finish Lon : E 32 : 1.345
Length : 20.00 km

Chitima 2
Number of transects : 26
Transect Bearing : 90.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 41.111 Start Lon : E 32 : 22.859
Finish Lat : S 15 : 41.111 Finish Lon : E 32 : 31.822
Length : 15.98 km

Transect # : 2
Start Lat : S 15 : 42.191 Start Lon : E 32 : 33.165
Finish Lat : S 15 : 42.191 Finish Lon : E 32 : 22.858
Length : 18.38 km

Transect # : 3
Start Lat : S 15 : 43.271 Start Lon : E 32 : 22.856
Finish Lat : S 15 : 43.271 Finish Lon : E 32 : 34.422
Length : 20.63 km

Transect # : 4
Start Lat : S 15 : 44.351 Start Lon : E 32 : 35.680
Finish Lat : S 15 : 44.351 Finish Lon : E 32 : 22.855
Length : 22.87 km

Transect # : 5
Start Lat : S 15 : 45.431 Start Lon : E 32 : 22.854
Finish Lat : S 15 : 45.431 Finish Lon : E 32 : 36.938
Length : 25.12 km

Transect # : 6
Start Lat : S 15 : 46.511 Start Lon : E 32 : 38.195
Finish Lat : S 15 : 46.511 Finish Lon : E 32 : 22.853
Length : 27.36 km

Transect # : 7
Start Lat : S 15 : 47.591 Start Lon : E 32 : 22.851
Finish Lat : S 15 : 47.591 Finish Lon : E 32 : 39.036
Length : 28.86 km

Transect # : 8
Start Lat : S 15 : 48.671 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 48.671 Finish Lon : E 32 : 22.850
Length : 28.86 km

Transect # : 9
Start Lat : S 15 : 49.751 Start Lon : E 32 : 22.849
Finish Lat : S 15 : 49.751 Finish Lon : E 32 : 39.036
Length : 28.87 km

Transect # : 10
Start Lat : S 15 : 50.831 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 50.831 Finish Lon : E 32 : 22.848
Length : 28.87 km

Transect # : 11
Start Lat : S 15 : 51.911 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 51.911 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 12
Start Lat : S 15 : 52.991 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 52.991 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 13
Start Lat : S 15 : 54.071 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 54.071 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 14
Start Lat : S 15 : 55.151 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 55.151 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 15
Start Lat : S 15 : 56.231 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 56.231 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 16
Start Lat : S 15 : 57.311 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 57.311 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 17
Start Lat : S 15 : 58.391 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 58.391 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 18
Start Lat : S 15 : 59.471 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 59.471 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 19
Start Lat : S 16 : 0.551 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 0.551 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 20
Start Lat : S 16 : 1.631 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 1.631 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 21
Start Lat : S 16 : 2.711 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 2.711 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 22
Start Lat : S 16 : 3.791 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 3.791 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 23
Start Lat : S 16 : 4.871 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 4.871 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 24
Start Lat : S 16 : 5.951 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 5.951 Finish Lon : E 32 : 26.724
Length : 21.96 km

Transect # : 25
Start Lat : S 16 : 7.031 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 7.031 Finish Lon : E 32 : 39.036
Length : 21.96 km

Transect # : 26
Start Lat : S 16 : 8.111 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 8.111 Finish Lon : E 32 : 26.724
Length : 21.96 km

Kachembe
Number of transects : 20
Transect Bearing : 90.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 47.312 Start Lon : E 32 : 39.128
Finish Lat : S 15 : 47.312 Finish Lon : E 32 : 39.036
Length : 0.16 km – Not flown

Transect # : 2
Start Lat : S 15 : 48.392 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 48.392 Finish Lon : E 32 : 40.386
Length : 2.41 km

Transect # : 3
Start Lat : S 15 : 49.472 Start Lon : E 32 : 41.643
Finish Lat : S 15 : 49.472 Finish Lon : E 32 : 39.036
Length : 4.65 km

Transect # : 4
Start Lat : S 15 : 50.552 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 50.552 Finish Lon : E 32 : 42.901
Length : 6.89 km

Transect # : 5
Start Lat : S 15 : 51.632 Start Lon : E 32 : 44.158
Finish Lat : S 15 : 51.632 Finish Lon : E 32 : 39.036
Length : 9.13 km

Transect # : 6
Start Lat : S 15 : 52.712 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 52.712 Finish Lon : E 32 : 45.416
Length : 11.37 km

Transect # : 7
Start Lat : S 15 : 53.792 Start Lon : E 32 : 46.673
Finish Lat : S 15 : 53.792 Finish Lon : E 32 : 39.036
Length : 13.61 km

Transect # : 8
Start Lat : S 15 : 54.872 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 54.872 Finish Lon : E 32 : 47.931
Length : 15.85 km

Transect # : 9
Start Lat : S 15 : 55.952 Start Lon : E 32 : 48.633
Finish Lat : S 15 : 55.952 Finish Lon : E 32 : 39.036
Length : 17.10 km

Transect # : 10
Start Lat : S 15 : 57.032 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 57.032 Finish Lon : E 32 : 48.990
Length : 17.74 km

Transect # : 11
Start Lat : S 15 : 58.112 Start Lon : E 32 : 49.348
Finish Lat : S 15 : 58.112 Finish Lon : E 32 : 39.036
Length : 18.38 km

Transect # : 12
Start Lat : S 15 : 59.192 Start Lon : E 32 : 39.036
Finish Lat : S 15 : 59.192 Finish Lon : E 32 : 49.705
Length : 19.02 km

Transect # : 13
Start Lat : S 16 : 0.272 Start Lon : E 32 : 50.191
Finish Lat : S 16 : 0.272 Finish Lon : E 32 : 39.036
Length : 19.88 km

Transect # : 14
Start Lat : S 16 : 1.352 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 1.352 Finish Lon : E 32 : 51.691
Length : 22.55 km

Transect # : 15
Start Lat : S 16 : 2.432 Start Lon : E 32 : 52.098
Finish Lat : S 16 : 2.432 Finish Lon : E 32 : 39.036
Length : 23.28 km

Transect # : 16
Start Lat : S 16 : 3.512 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 3.512 Finish Lon : E 32 : 52.915
Length : 24.74 km

Transect # : 17
Start Lat : S 16 : 4.592 Start Lon : E 32 : 53.620
Finish Lat : S 16 : 4.592 Finish Lon : E 32 : 39.036
Length : 25.99 km

Transect # : 18
Start Lat : S 16 : 5.672 Start Lon : E 32 : 39.036

Finish Lat : S 16 : 5.672 Finish Lon : E 32 : 54.476
Length : 27.52 km

Transect # : 19
Start Lat : S 16 : 6.752 Start Lon : E 32 : 54.673
Finish Lat : S 16 : 6.752 Finish Lon : E 32 : 39.036
Length : 27.87 km

Chintholo 3
Number of transects : 28
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 8.667 Start Lon : E 32 : 27.818
Finish Lat : S 16 : 18.720 Finish Lon : E 32 : 27.818
Length : 18.62 km

Transect # : 2
Start Lat : S 16 : 19.090 Start Lon : E 32 : 28.941
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 28.941
Length : 19.30 km

Transect # : 3
Start Lat : S 16 : 8.667 Start Lon : E 32 : 30.064
Finish Lat : S 16 : 19.459 Finish Lon : E 32 : 30.064
Length : 19.99 km

Transect # : 4
Start Lat : S 16 : 19.828 Start Lon : E 32 : 31.187
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 31.187
Length : 20.67 km

Transect # : 5
Start Lat : S 16 : 8.667 Start Lon : E 32 : 32.311
Finish Lat : S 16 : 20.198 Finish Lon : E 32 : 32.311
Length : 21.35 km

Transect # : 6
Start Lat : S 16 : 20.567 Start Lon : E 32 : 33.434
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 33.434
Length : 22.04 km

Transect # : 7
Start Lat : S 16 : 8.667 Start Lon : E 32 : 34.557
Finish Lat : S 16 : 20.937 Finish Lon : E 32 : 34.557
Length : 22.72 km

Transect # : 8
Start Lat : S 16 : 21.306 Start Lon : E 32 : 35.681
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 35.681
Length : 23.41 km

Transect # : 9
Start Lat : S 16 : 8.667 Start Lon : E 32 : 36.804
Finish Lat : S 16 : 21.676 Finish Lon : E 32 : 36.804
Length : 24.09 km
Transect # : 10
Start Lat : S 16 : 22.045 Start Lon : E 32 : 37.927
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 37.927
Length : 24.77 km

Transect # : 11
Start Lat : S 16 : 8.667 Start Lon : E 32 : 39.050
Finish Lat : S 16 : 22.415 Finish Lon : E 32 : 39.050
Length : 25.46 km

Transect # : 12
Start Lat : S 16 : 22.784 Start Lon : E 32 : 40.174
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 40.174
Length : 26.14 km

Transect # : 13
Start Lat : S 16 : 8.667 Start Lon : E 32 : 41.297
Finish Lat : S 16 : 23.153 Finish Lon : E 32 : 41.297
Length : 26.83 km

Transect # : 14
Start Lat : S 16 : 23.523 Start Lon : E 32 : 42.420
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 42.420
Length : 27.51 km

Transect # : 15
Start Lat : S 16 : 8.667 Start Lon : E 32 : 43.544
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 43.544
Length : 26.15 km

Transect # : 16
Start Lat : S 16 : 22.788 Start Lon : E 32 : 44.667
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 44.667
Length : 26.15 km

Transect # : 17
Start Lat : S 16 : 8.667 Start Lon : E 32 : 45.790
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 45.790
Length : 26.15 km

Transect # : 18
Start Lat : S 16 : 22.788 Start Lon : E 32 : 46.913
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 46.913
Length : 26.15 km
Transect # : 19
Start Lat : S 16 : 8.667 Start Lon : E 32 : 48.037
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 48.037
Length : 26.15 km

Transect # : 20
Start Lat : S 16 : 22.788 Start Lon : E 32 : 49.160
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 49.160
Length : 26.15 km

Transect # : 21
Start Lat : S 16 : 8.667 Start Lon : E 32 : 50.283
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 50.283
Length : 26.15 km

Transect # : 20
Start Lat : S 16 : 7.832 Start Lon : E 32 : 39.036
Finish Lat : S 16 : 7.832 Finish Lon : E 32 : 56.735
Length : 31.54 km

Transect # : 22
Start Lat : S 16 : 22.788 Start Lon : E 32 : 51.407
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 51.407
Length : 26.15 km

Transect # : 23A
Start Lat : S 16 : 8.667 Start Lon : E 32 : 52.530
Finish Lat : S 16 : 14.068 Finish Lon : E 32 : 52.530
Length : 10.00 km

Transect # : 23B
Start Lat : S 16 : 14.408 Start Lon : E 32 : 52.530
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 52.530
Length : 15.52 km

Transect # : 24A
Start Lat : S 16 : 22.788 Start Lon : E 32 : 53.653
Finish Lat : S 16 : 15.846 Finish Lon : E 32 : 53.653
Length : 12.86 km

Transect # : 24B
Start Lat : S 16 : 11.387 Start Lon : E 32 : 53.653
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 53.653
Length : 5.01 km

Transect # : 25A
Start Lat : S 16 : 8.667 Start Lon : E 32 : 54.776
Finish Lat : S 16 : 12.299 Finish Lon : E 32 : 54.776
Length : 6.70 km

Transect # : 25B
Start Lat : S 16 : 17.508 Start Lon : E 32 : 54.776
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 54.776
Length : 9.78 km

Transect # : 26A
Start Lat : S 16 : 22.788 Start Lon : E 32 : 55.900
Finish Lat : S 16 : 19.062 Finish Lon : E 32 : 55.900
Length : 6.90 km

Transect # : 26B
Start Lat : S 16 : 11.877 Start Lon : E 32 : 55.900
Finish Lat : S 16 : 8.667 Finish Lon : E 32 : 55.900
Length : 5.94 km

Transect # : 27A
Start Lat : S 16 : 8.667 Start Lon : E 32 : 57.023
Finish Lat : S 16 : 10.850 Finish Lon : E 32 : 57.023
Length : 4.02 km

Transect # : 27B
Start Lat : S 16 : 20.467 Start Lon : E 32 : 57.023
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 57.023
Length : 4.30 km

Transect # : 28A
Start Lat : S 16 : 22.788 Start Lon : E 32 : 58.146
Finish Lat : S 16 : 21.491 Finish Lon : E 32 : 58.146
Length : 2.40 km

Transect # : 28B
Start Lat : S 16 : 10.416 Start Lon : E 32 : 58.146
Finish Lat : S 16 : 9.031 Finish Lon : E 32 : 58.146
Length : 2.56 km

Chintholo 4
Number of transects : 23
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 15.286 Start Lon : E 32 : 17.370
Finish Lat : S 16 : 26.139 Finish Lon : E 32 : 17.370
Length : 20.10 km

Transect # : 2
Start Lat : S 16 : 26.438 Start Lon : E 32 : 18.494
Finish Lat : S 16 : 15.655 Finish Lon : E 32 : 18.494
Length : 19.97 km

Transect # : 3
Start Lat : S 16 : 16.025 Start Lon : E 32 : 19.619
Finish Lat : S 16 : 26.736 Finish Lon : E 32 : 19.619
Length : 19.84 km

Transect # : 4
Start Lat : S 16 : 27.040 Start Lon : E 32 : 20.743
Finish Lat : S 16 : 16.395 Finish Lon : E 32 : 20.743
Length : 19.71 km

Transect # : 5
Start Lat : S 16 : 16.764 Start Lon : E 32 : 21.868
Finish Lat : S 16 : 27.347 Finish Lon : E 32 : 21.868
Length : 19.60 km

Transect # : 6
Start Lat : S 16 : 27.673 Start Lon : E 32 : 22.992
Finish Lat : S 16 : 17.134 Finish Lon : E 32 : 22.992
Length : 19.52 km

Transect # : 7
Start Lat : S 16 : 17.503 Start Lon : E 32 : 24.117
Finish Lat : S 16 : 28.015 Finish Lon : E 32 : 24.117
Length : 19.47 km

Transect # : 8
Start Lat : S 16 : 28.394 Start Lon : E 32 : 25.241
Finish Lat : S 16 : 17.873 Finish Lon : E 32 : 25.241
Length : 19.48 km

Transect # : 9
Start Lat : S 16 : 18.243 Start Lon : E 32 : 26.366
Finish Lat : S 16 : 28.822 Finish Lon : E 32 : 26.366
Length : 19.59 km

Transect # : 10
Start Lat : S 16 : 29.258 Start Lon : E 32 : 27.490
Finish Lat : S 16 : 18.612 Finish Lon : E 32 : 27.490
Length : 19.71 km

Transect # : 11

Start Lat : S 16 : 18.982 Start Lon : E 32 : 28.615
Finish Lat : S 16 : 29.694 Finish Lon : E 32 : 28.615
Length : 19.84 km

Transect # : 12
Start Lat : S 16 : 30.127 Start Lon : E 32 : 29.739
Finish Lat : S 16 : 19.352 Finish Lon : E 32 : 29.739
Length : 19.95 km

Transect # : 13
Start Lat : S 16 : 19.722 Start Lon : E 32 : 30.864
Finish Lat : S 16 : 30.559 Finish Lon : E 32 : 30.864
Length : 20.07 km

Transect # : 14
Start Lat : S 16 : 30.991 Start Lon : E 32 : 31.988
Finish Lat : S 16 : 22.916 Finish Lon : E 32 : 31.988
Length : 14.89 km

Transect # : 15
Start Lat : S 16 : 22.916 Start Lon : E 32 : 33.113
Finish Lat : S 16 : 31.423 Finish Lon : E 32 : 33.113
Length : 15.68 km

Transect # : 16
Start Lat : S 16 : 31.823 Start Lon : E 32 : 34.237
Finish Lat : S 16 : 20.831 Finish Lon : E 32 : 34.237
Length : 20.35 km

Transect # : 17
Start Lat : S 16 : 21.201 Start Lon : E 32 : 35.362
Finish Lat : S 16 : 32.378 Finish Lon : E 32 : 35.362
Length : 20.70 km

Transect # : 18
Start Lat : S 16 : 32.932 Start Lon : E 32 : 36.486
Finish Lat : S 16 : 21.571 Finish Lon : E 32 : 36.486
Length : 21.04 km

Transect # : 19
Start Lat : S 16 : 21.941 Start Lon : E 32 : 37.611
Finish Lat : S 16 : 33.475 Finish Lon : E 32 : 37.611
Length : 21.36 km

Transect # : 20
Start Lat : S 16 : 34.013 Start Lon : E 32 : 38.735
Finish Lat : S 16 : 22.311 Finish Lon : E 32 : 38.735
Length : 21.67 km

Transect # : 21
Start Lat : S 16 : 22.681 Start Lon : E 32 : 39.859
Finish Lat : S 16 : 34.537 Finish Lon : E 32 : 39.859
Length : 21.96 km

Transect # : 22
Start Lat : S 16 : 35.063 Start Lon : E 32 : 40.984
Finish Lat : S 16 : 23.050 Finish Lon : E 32 : 40.984
Length : 22.25 km

Transect # : 23
Start Lat : S 16 : 23.420 Start Lon : E 32 : 42.108
Finish Lat : S 16 : 34.505 Finish Lon : E 32 : 42.108
Length : 20.44 km

Luenha
Number of transects : 43
Transect Bearing : 90.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 16 : 34.764 Start Lon : E 33 : 11.816
Finish Lat : S 16 : 34.764 Finish Lon : E 33 : 13.001
Length : 2.11 km

Transect # : 2
Start Lat : S 16 : 35.844 Start Lon : E 33 : 13.051
Finish Lat : S 16 : 35.844 Finish Lon : E 33 : 11.169
Length : 3.34 km

Transect # : 3
Start Lat : S 16 : 36.924 Start Lon : E 33 : 8.760
Finish Lat : S 16 : 36.924 Finish Lon : E 33 : 13.100
Length : 7.71 km

Transect # : 4
Start Lat : S 16 : 38.004 Start Lon : E 33 : 13.149
Finish Lat : S 16 : 38.004 Finish Lon : E 33 : 7.685
Length : 9.70 km

Transect # : 5
Start Lat : S 16 : 39.084 Start Lon : E 33 : 5.220
Finish Lat : S 16 : 39.084 Finish Lon : E 33 : 13.198
Length : 14.16 km

Transect # : 6
Start Lat : S 16 : 40.164 Start Lon : E 33 : 13.247
Finish Lat : S 16 : 40.164 Finish Lon : E 33 : 4.331
Length : 15.83 km

Transect # : 7
Start Lat : S 16 : 41.244 Start Lon : E 33 : 3.557
Finish Lat : S 16 : 41.244 Finish Lon : E 33 : 13.296
Length : 17.29 km

Transect # : 8
Start Lat : S 16 : 42.324 Start Lon : E 33 : 13.345
Finish Lat : S 16 : 42.324 Finish Lon : E 33 : 2.370
Length : 19.49 km

Transect # : 9
Start Lat : S 16 : 43.404 Start Lon : E 33 : 3.131
Finish Lat : S 16 : 43.404 Finish Lon : E 33 : 13.394
Length : 18.22 km

Transect # : 10
Start Lat : S 16 : 44.484 Start Lon : E 33 : 13.444
Finish Lat : S 16 : 44.484 Finish Lon : E 33 : 3.892
Length : 16.96 km

Transect # : 11
Start Lat : S 16 : 45.564 Start Lon : E 33 : 4.653
Finish Lat : S 16 : 45.564 Finish Lon : E 33 : 13.493

Length : 15.69 km

Transect # : 12
Start Lat : S 16 : 46.644 Start Lon : E 33 : 13.542
Finish Lat : S 16 : 46.644 Finish Lon : E 33 : 5.414
Length : 14.43 km

Transect # : 13
Start Lat : S 16 : 47.724 Start Lon : E 33 : 6.175
Finish Lat : S 16 : 47.724 Finish Lon : E 33 : 13.591
Length : 13.17 km

Transect # : 14
Start Lat : S 16 : 48.804 Start Lon : E 33 : 13.640
Finish Lat : S 16 : 48.804 Finish Lon : E 33 : 6.936
Length : 11.90 km

Transect # : 15
Start Lat : S 16 : 49.884 Start Lon : E 33 : 7.697
Finish Lat : S 16 : 49.884 Finish Lon : E 33 : 13.689
Length : 10.64 km

Transect # : 16
Start Lat : S 16 : 50.964 Start Lon : E 33 : 13.773
Finish Lat : S 16 : 50.964 Finish Lon : E 33 : 8.458
Length : 9.44 km

Transect # : 17
Start Lat : S 16 : 52.044 Start Lon : E 33 : 8.472
Finish Lat : S 16 : 52.044 Finish Lon : E 33 : 14.313
Length : 10.37 km

Transect # : 18
Start Lat : S 16 : 53.124 Start Lon : E 33 : 14.865
Finish Lat : S 16 : 53.124 Finish Lon : E 33 : 7.955
Length : 12.27 km

Transect # : 19
Start Lat : S 16 : 54.204 Start Lon : E 33 : 7.438
Finish Lat : S 16 : 54.204 Finish Lon : E 33 : 14.425
Length : 12.41 km

Transect # : 20
Start Lat : S 16 : 55.284 Start Lon : E 33 : 14.141
Finish Lat : S 16 : 55.284 Finish Lon : E 33 : 6.920
Length : 12.82 km

Transect # : 21
Start Lat : S 16 : 56.364 Start Lon : E 33 : 6.403
Finish Lat : S 16 : 56.364 Finish Lon : E 33 : 13.622
Length : 12.82 km

Transect # : 22
Start Lat : S 16 : 57.444 Start Lon : E 33 : 13.093
Finish Lat : S 16 : 57.444 Finish Lon : E 33 : 5.885
Length : 12.80 km

Transect # : 23
Start Lat : S 16 : 58.524 Start Lon : E 33 : 5.368
Finish Lat : S 16 : 58.524 Finish Lon : E 33 : 13.045
Length : 13.63 km

Transect # : 24
Start Lat : S 16 : 59.604 Start Lon : E 33 : 12.456
Finish Lat : S 16 : 59.604 Finish Lon : E 33 : 4.850
Length : 13.50 km

Transect # : 25
Start Lat : S 17 : 0.684 Start Lon : E 33 : 4.333
Finish Lat : S 17 : 0.684 Finish Lon : E 33 : 11.033
Length : 11.89 km

Transect # : 26
Start Lat : S 17 : 1.764 Start Lon : E 33 : 9.329
Finish Lat : S 17 : 1.764 Finish Lon : E 33 : 3.816
Length : 9.79 km

Transect # : 27
Start Lat : S 17 : 2.844 Start Lon : E 33 : 3.298
Finish Lat : S 17 : 2.844 Finish Lon : E 33 : 8.495
Length : 9.23 km

Transect # : 28
Start Lat : S 17 : 3.924 Start Lon : E 33 : 8.610
Finish Lat : S 17 : 3.924 Finish Lon : E 33 : 2.781
Length : 10.35 km

Transect # : 29
Start Lat : S 17 : 5.004 Start Lon : E 33 : 2.264
Finish Lat : S 17 : 5.004 Finish Lon : E 33 : 7.683
Length : 9.62 km

Transect # : 30
Start Lat : S 17 : 6.084 Start Lon : E 33 : 6.846
Finish Lat : S 17 : 6.084 Finish Lon : E 33 : 1.746
Length : 9.06 km

Transect # : 31
Start Lat : S 17 : 7.164 Start Lon : E 33 : 1.229
Finish Lat : S 17 : 7.164 Finish Lon : E 33 : 6.599
Length : 9.54 km

Transect # : 32
Start Lat : S 17 : 8.244 Start Lon : E 33 : 7.470
Finish Lat : S 17 : 8.244 Finish Lon : E 33 : 0.711
Length : 12.00 km

Transect # : 33
Start Lat : S 17 : 9.324 Start Lon : E 33 : 0.716
Finish Lat : S 17 : 9.324 Finish Lon : E 33 : 6.451
Length : 10.17 km

Transect # : 34
Start Lat : S 17 : 10.404 Start Lon : E 33 : 5.939
Finish Lat : S 17 : 10.404 Finish Lon : E 32 : 59.677
Length : 11.12 km

Transect # : 35
Start Lat : S 17 : 11.484 Start Lon : E 32 : 59.496
Finish Lat : S 17 : 11.484 Finish Lon : E 33 : 5.362
Length : 10.41 km

Transect # : 36
Start Lat : S 17 : 12.564 Start Lon : E 33 : 5.525
Finish Lat : S 17 : 12.564 Finish Lon : E 32 : 59.586
Length : 10.54 km

Transect # : 37
Start Lat : S 17 : 13.644 Start Lon : E 32 : 59.661
Finish Lat : S 17 : 13.644 Finish Lon : E 33 : 5.451
Length : 10.28 km

Transect # : 38
Start Lat : S 17 : 14.724 Start Lon : E 33 : 4.693

Finish Lat : S 17 : 14.724 Finish Lon : E 32 : 59.738
Length : 8.80 km

Transect # : 39
Start Lat : S 17 : 15.804 Start Lon : E 32 : 59.780
Finish Lat : S 17 : 15.804 Finish Lon : E 33 : 4.196
Length : 7.84 km

Transect # : 40
Start Lat : S 17 : 16.884 Start Lon : E 33 : 3.881
Finish Lat : S 17 : 16.884 Finish Lon : E 32 : 59.828
Length : 7.20 km

Transect # : 41
Start Lat : S 17 : 17.964 Start Lon : E 32 : 59.892
Finish Lat : S 17 : 17.964 Finish Lon : E 33 : 3.050
Length : 5.61 km

Transect # : 42
Start Lat : S 17 : 19.044 Start Lon : E 33 : 3.068
Finish Lat : S 17 : 19.044 Finish Lon : E 33 : 1.408
Length : 2.94 km

Transect # : 43
Start Lat : S 17 : 20.124 Start Lon : E 33 : 2.336
Finish Lat : S 17 : 20.124 Finish Lon : E 33 : 3.063
Length : 1.29 km

Chipembere
Number of transects : 27
Transect Bearing : 0.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1A
Start Lat : S 16 : 22.788 Start Lon : E 32 : 42.679
Finish Lat : S 16 : 34.909 Finish Lon : E 32 : 42.679
Length : 22.35 km

Transect # : 1B
Start Lat : S 16 : 36.236 Start Lon : E 32 : 42.679
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 42.679
Length : 4.41 km – Not flown

Transect # : 2
Start Lat : S 16 : 38.616 Start Lon : E 32 : 43.804
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 43.804
Length : 29.31 km

Transect # : 3
Start Lat : S 16 : 22.788 Start Lon : E 32 : 44.929
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 44.929
Length : 29.31 km

Transect # : 4
Start Lat : S 16 : 38.616 Start Lon : E 32 : 46.054
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 46.054
Length : 29.31 km

Transect # : 5
Start Lat : S 16 : 22.788 Start Lon : E 32 : 47.179
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 47.179
Length : 29.31 km

Transect # : 6
Start Lat : S 16 : 38.616 Start Lon : E 32 : 48.304
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 48.304
Length : 29.31 km
Transect # : 7
Start Lat : S 16 : 22.788 Start Lon : E 32 : 49.429
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 49.429
Length : 29.31 km

Transect # : 8
Start Lat : S 16 : 38.616 Start Lon : E 32 : 50.554
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 50.554
Length : 29.31 km

Transect # : 9
Start Lat : S 16 : 22.788 Start Lon : E 32 : 51.679
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 51.679
Length : 29.31 km

Transect # : 10
Start Lat : S 16 : 38.616 Start Lon : E 32 : 52.803
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 52.803
Length : 29.31 km

Transect # : 11
Start Lat : S 16 : 22.788 Start Lon : E 32 : 53.928
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 53.928
Length : 29.31 km

Transect # : 12
Start Lat : S 16 : 38.616 Start Lon : E 32 : 55.053
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 55.053
Length : 29.31 km

Transect # : 13
Start Lat : S 16 : 22.788 Start Lon : E 32 : 56.178
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 56.178
Length : 29.31 km

Transect # : 14
Start Lat : S 16 : 38.616 Start Lon : E 32 : 57.303
Finish Lat : S 16 : 22.788 Finish Lon : E 32 : 57.303
Length : 29.31 km

Transect # : 15
Start Lat : S 16 : 22.788 Start Lon : E 32 : 58.428
Finish Lat : S 16 : 38.616 Finish Lon : E 32 : 58.428
Length : 29.31 km

Transect # : 16
Start Lat : S 16 : 38.616 Start Lon : E 32 : 59.553
Finish Lat : S 16 : 22.972 Finish Lon : E 32 : 59.553
Length : 28.97 km

Transect # : 17
Start Lat : S 16 : 23.243 Start Lon : E 33 : 0.677
Finish Lat : S 16 : 39.921 Finish Lon : E 33 : 0.677
Length : 30.89 km

Transect # : 18
Start Lat : S 16 : 41.518 Start Lon : E 33 : 1.802
Finish Lat : S 16 : 23.514 Finish Lon : E 33 : 1.802

Length : 33.34 km

Transect # : 19
Start Lat : S 16 : 23.785 Start Lon : E 33 : 2.927
Finish Lat : S 16 : 41.500 Finish Lon : E 33 : 2.927
Length : 32.80 km

Transect # : 20
Start Lat : S 16 : 40.284 Start Lon : E 33 : 4.052
Finish Lat : S 16 : 24.057 Finish Lon : E 33 : 4.052
Length : 30.05 km

Transect # : 21
Start Lat : S 16 : 24.328 Start Lon : E 33 : 5.177
Finish Lat : S 16 : 39.224 Finish Lon : E 33 : 5.177
Length : 27.59 km

Transect # : 22
Start Lat : S 16 : 38.144 Start Lon : E 33 : 6.302
Finish Lat : S 16 : 24.599 Finish Lon : E 33 : 6.302
Length : 25.08 km

Transect # : 23
Start Lat : S 16 : 24.870 Start Lon : E 33 : 7.427
Finish Lat : S 16 : 38.084 Finish Lon : E 33 : 7.427
Length : 24.47 km

Transect # : 24
Start Lat : S 16 : 37.230 Start Lon : E 33 : 8.552
Finish Lat : S 16 : 26.212 Finish Lon : E 33 : 8.552
Length : 20.40 km

Transect # : 25
Start Lat : S 16 : 28.257 Start Lon : E 33 : 9.677
Finish Lat : S 16 : 36.580 Finish Lon : E 33 : 9.677
Length : 15.41 km

Transect # : 26
Start Lat : S 16 : 36.552 Start Lon : E 33 : 10.802
Finish Lat : S 16 : 31.463 Finish Lon : E 33 : 10.802
Length : 9.38 km

Transect # : 27
Start Lat : S 16 : 32.346 Start Lon : E 33 : 11.926
Finish Lat : S 16 : 34.540 Finish Lon : E 33 : 11.926
Length : 4.06 km

Chitima 3
Number of transects : 11
Transect Bearing : 90.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 52.608 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 52.608 Finish Lon : E 32 : 0.900
Length : 22.16 km

Transect # : 2
Start Lat : S 15 : 53.688 Start Lon : E 32 : 0.900
Finish Lat : S 15 : 53.688 Finish Lon : E 32 : 13.336
Length : 22.16 km

Transect # : 3
Start Lat : S 15 : 54.768 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 54.768 Finish Lon : E 32 : 0.900
Length : 22.16 km

Transect # : 4
Start Lat : S 15 : 55.848 Start Lon : E 32 : 0.900
Finish Lat : S 15 : 55.848 Finish Lon : E 32 : 13.336
Length : 22.16 km

Transect # : 5
Start Lat : S 15 : 56.928 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 56.928 Finish Lon : E 32 : 0.900
Length : 22.16 km

Transect # : 6
Start Lat : S 15 : 58.008 Start Lon : E 32 : 0.900
Finish Lat : S 15 : 58.008 Finish Lon : E 32 : 13.336
Length : 22.16 km

Transect # : 7
Start Lat : S 15 : 59.088 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 59.088 Finish Lon : E 32 : 0.900
Length : 22.16 km

Transect # : 8
Start Lat : S 16 : 0.168 Start Lon : E 32 : 0.900
Finish Lat : S 16 : 0.168 Finish Lon : E 32 : 13.336
Length : 22.16 km

Transect # : 9
Start Lat : S 16 : 1.248 Start Lon : E 32 : 13.336
Finish Lat : S 16 : 1.248 Finish Lon : E 32 : 0.900
Length : 22.16 km
Transect # : 10
Start Lat : S 16 : 2.328 Start Lon : E 32 : 0.900
Finish Lat : S 16 : 2.328 Finish Lon : E 32 : 13.336
Length : 22.16 km

Transect # : 11
Start Lat : S 16 : 3.408 Start Lon : E 32 : 13.336
Finish Lat : S 16 : 3.408 Finish Lon : E 32 : 0.900
Length : 22.16 km

Chitima 4
Number of transects : 11
Transect Bearing : 90.00 Degrees
Transect Spacing : 2.00 km

Transect # : 1
Start Lat : S 15 : 52.608 Start Lon : E 32 : 26.724

Finish Lat : S 15 : 52.608 Finish Lon : E 32 : 13.336
Length : 23.85 km

Transect # : 2
Start Lat : S 15 : 53.688 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 53.688 Finish Lon : E 32 : 26.724
Length : 23.85 km

Transect # : 3
Start Lat : S 15 : 54.768 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 54.768 Finish Lon : E 32 : 13.336
Length : 23.85 km

Transect # : 4
Start Lat : S 15 : 55.848 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 55.848 Finish Lon : E 32 : 26.724
Length : 23.85 km

Transect # : 5
Start Lat : S 15 : 56.928 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 56.928 Finish Lon : E 32 : 13.336
Length : 23.85 km

Transect # : 6
Start Lat : S 15 : 58.008 Start Lon : E 32 : 13.336
Finish Lat : S 15 : 58.008 Finish Lon : E 32 : 26.724
Length : 23.85 km

Transect # : 7
Start Lat : S 15 : 59.088 Start Lon : E 32 : 26.724
Finish Lat : S 15 : 59.088 Finish Lon : E 32 : 13.336
Length : 23.85 km

Transect # : 8
Start Lat : S 16 : 0.168 Start Lon : E 32 : 13.336
Finish Lat : S 16 : 0.168 Finish Lon : E 32 : 26.724
Length : 23.85 km

Transect # : 9
Start Lat : S 16 : 1.248 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 1.248 Finish Lon : E 32 : 13.336
Length : 23.85 km

Transect # : 10
Start Lat : S 16 : 2.328 Start Lon : E 32 : 13.336
Finish Lat : S 16 : 2.328 Finish Lon : E 32 : 26.724
Length : 23.85 km

Transect # : 11A
Start Lat : S 16 : 3.408 Start Lon : E 32 : 26.724
Finish Lat : S 16 : 3.408 Finish Lon : E 32 : 20.411
Length : 11.26 km

Transect ~ : 11B
Start Lat : S 16 : 3.408 Start Lon : E 32 : 16.656
Finish Lat : S 16 : 3.408 Finish Lon : E 32 : 13.336
Length : 5.92 km

Appendix 4. Transect summaries of sightings

Species codes:

Code	Species
Bab	Baboon
Bbk	Bushbuck
Bpig	Bushpig
Buff	Buffalo
Camp	Poachers' camp
Catt	Cattle
Croc	Crocodile
Dkr	Common or Grey Duiker
Donk	Donkey
ElC3	Elephant carcass, age category 3
ElC4	Elephant carcass, age category 4
EleF	Elephant cow
EleM	Elephant bull
Fish	Fishing camp
Fire	Bush fire burning
Gbk	Grysbok
Ghbl	Ground hornbill
Hipo	Hippopotamus
Imp	Impala
Kudu	Kudu
Log	Commercial logging
Pig	Domestic pig
Roan	Roan antelope
Sett	Settlement
Shoa	Sheep and/or goats
Vill	Village
Water	Pan or other source of water for wildlife
Wbck	Waterbuck
Whog	Warthog
Zeb	Zebra

Other abbreviations

Abbreviation	Meaning
n	number of transects sampled
N	possible number of transects in stratum
t	Student's *t* value, $P = 0.05$
T #	transect number
-	no animals were seen in search strips

The following tables list, for each stratum, the number of individuals of each species that were seen inside the search strips on each transect.

Date of Survey : 19/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 1222 km^2
N : 112 n : 27
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Mukumbura 1
Base Line Length : 53.9 km
Calibrated Strip Width at 300ft : 457 m
t : 2.056
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleF	Zeb	Imp	Kudu	Hipo	EIC3	EIC4	Camp	Catt	Shoa	Donk	Dkr	Vill	Sett	Fish	Ghbl	Whog	Croc
1	-	-	-	-	1	-	-	-	62	-	-	5	1	3	1	-	-	-
2	-	-	-	1	-	-	1	-	14	41	12	4	1	3	3	-	-	-
3	-	-	1	-	-	-	-	-	76	21	6	3	-	3	-	1	-	-
4	-	-	-	-	-	-	-	-	13	-	-	3	1	-	2	-	1	-
5	-	-	-	-	-	-	1	-	15	-	-	3	1	-	1	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
7	-	-	-	4	-	-	-	-	90	-	-	3	-	4	1	-	1	1
8	-	-	-	4	2	-	-	-	-	16	4	1	1	-	-	-	-	-
9	-	-	-	-	6	-	-	-	30	-	-	-	-	-	-	-	-	-
10	-	-	-	10	-	-	-	-	-	-	-	3	-	-	-	-	-	-
11	-	-	-	2	-	-	-	-	-	-	-	1	2	2	-	-	-	-
12	-	-	-	-	-	-	-	2	82	40	8	-	2	-	-	-	-	-
13	-	-	-	-	-	-	-	-	30	40	-	1	1	-	-	-	-	-
14	-	-	-	11	1	-	-	-	2	20	-	2	-	1	-	-	1	-
15	-	-	-	2	12	-	-	2	-	-	-	1	-	1	-	-	-	7
16	-	-	-	-	-	-	1	3	19	20	-	-	1	2	1	-	-	1
17	13	-	3	-	-	-	-	-	-	-	-	-	-	1	-	-	-	3
18	13	12	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
19	-	-	-	-	17	1	-	-	19	-	3	1	1	2	-	-	-	2
20	-	-	-	-	12	-	-	-	23	8	6	1	-	4	-	-	-	10
21	-	-	-	-	25	1	-	-	16	11	6	-	1	2	-	-	-	-
22	-	-	-	-	-	-	-	-	16	-	-	1	-	2	-	-	-	-
23	-	-	-	-	-	-	-	-	127	12	-	-	1	2	-	-	-	-
24	-	-	-	-	-	-	-	-	37	-	7	2	1	2	-	1	-	-
25	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-	-
26	-	-	-	-	-	-	-	-	96	5	-	-	1	1	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sighting Totals

	EleF	Zeb	Imp	Kudu	Hipo	EIC3	EIC4	Camp	Catt	Shoa	Donk	Dkr	Vill	Sett	Fish	Ghbl	Whog	Croc
	26	12	4	34	76	2	3	7	767	234	52	41	16	38	9	2	3	27

Date of Survey : 21/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 821 km^2
N : 126 n : 29
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Mukumbura 2
Base Line Length : 58 km
Calibrated Strip Width at 300ft : 457 m
t : 2.048
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	Kudu	Camp	Catt	Shoa	Donk	Dkr	Vill	Sett	Fire	Bpig	Bab	Ghbl	Eltk	Hipo	Croc	Pig	Gbk
1	-	-	-	37	4	6	3	2	8	-	-	-	-	-	-	-	-	-
2	-	-	1	37	-	3	6	-	7	-	-	-	-	-	-	-	-	-
3	-	-	-	50	26	-	4	1	6	-	-	-	-	-	-	-	-	1
4	-	-	-	7	24	-	4	1	3	1	-	-	-	-	-	-	-	-
5	-	-	-	8	-	-	4	-	4	-	1	-	-	-	-	-	-	-
6	-	-	-	67	-	2	1	2	1	-	-	6	-	-	-	-	-	-
7	-	-	-	47	4	1	2	-	1	-	-	-	-	-	-	-	-	-
8	-	-	-	8	13	-	5	-	-	-	-	-	2	1	-	-	-	-
9	-	-	-	29	18	-	3	2	3	-	-	-	-	-	-	-	-	-
10	-	-	-	7	30	-	-	-	3	-	-	-	-	1	-	-	-	1
11	-	-	-	58	7	1	1	1	5	-	-	-	-	1	-	-	-	-
12	-	-	-	23	-	-	2	-	2	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	2	1	-	-	-	-	-	-	2	-	-	-	-
14	-	-	-	10	6	-	4	-	1	-	-	-	-	1	-	-	-	-
15	-	-	-	33	5	-	2	3	-	-	-	-	-	1	-	-	-	-
16	-	1	-	12	66	-	3	4	-	-	-	-	-	-	-	-	-	-
17	-	-	-	4	-	-	-	2	-	-	-	-	-	-	-	-	-	-
18	-	-	-	41	30	-	3	-	1	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	7	4	-	1	-	1	-	-	-	4	-	-	-	-	-
22	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	33	17	-	1	1	2	1	-	-	-	-	-	-	-	-
24	-	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	36	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	45	-	-	-	1	2	-	-	-	-	-	-	-	-	-
27	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
28	-	-	-	15	11	-	1	3	1	-	-	-	-	-	13	1	3	-
29	-	-	-	69	6	-	-	1	1	-	-	-	-	-	-	1	-	-

Sighting Totals

	EleM	Kudu	Camp	Catt	Shoa	Donk	Dkr	Vill	Sett	Fire	Bpig	Bab	Ghbl	Eltk	Hipo	Croc	Pig	Gbk
	1	1	1	670	307	15	53	24	53	2	1	6	6	7	13	2	3	2

Date of Survey : 20/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 741 km^2
N : 80 n : 21
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Mphende
Base Line Length : 41.3 km
Calibrated Strip Width at 300ft : 457 m
t : 2.086
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleF	Kudu	Hipo	Catt	Shoa	Donk	Fish	Whog	Bbk	Vill	Sett	Dkr	Croc	Fire	Eltk	Snar
1	-	-	7	-	-	-	1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	1	3	3	-	-	-	-	-	-	-
3	12	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-
4	-	-	6	-	-	-	4	-	-	-	-	1	-	-	-	-
5	4	-	6	-	-	-	2	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	1	-	1	-	-	1	1	-	-	1
7	-	-	-	-	-	-	-	5	1	-	-	1	-	-	-	-
8	-	4	14	-	-	-	-	-	-	1	-	-	-	2	1	-
9	-	-	-	-	-	-	1	-	-	1	2	-	-	1	1	-
10	-	-	8	-	-	-	-	-	1	-	-	1	-	-	1	-
11	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	1
12	-	4	-	22	-	-	-	-	-	1	1	1	-	-	-	-
13	-	-	-	6	-	-	-	-	-	1	3	1	-	-	-	-
14	-	-	-	12	40	-	-	-	-	2	3	-	-	-	-	-
15	-	-	-	17	10	-	-	-	-	3	3	5	-	-	-	-
16	-	-	-	26	-	-	-	-	-	-	3	-	-	-	-	-
17	-	-	-	26	4	-	-	-	-	2	3	-	-	-	1	-
18	-	-	-	-	-	-	-	-	-	-	5	1	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-
20	-	-	-	-	-	4	1	-	-	1	7	3	-	-	-	-
21	-	-	-	-	9	-	1	-	-	2	-	1	-	-	-	-

Sighting Totals

	EleF	Kudu	Hipo	Catt	Shoa	Donk	Fish	Whog	Bbk	Vill	Sett	Dkr	Croc	Fire	Eltk	Snar
	16	8	42	109	63	4	12	8	8	14	36	17	1	3	4	2

Date of Survey : 22/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 793 km^2
N : 81 n : 21
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Mukumbura 3
Base Line Length : 41.3 km
Calibrated Strip Width at 300ft : 457 m
t : 2.086
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	EleF	Kudu	EIC4	Whog	Dkr	Eltk	Ghbl	Bab	Fire	Sett
1	-	-	3	-	1	3	-	-	-	-	-
2	-	-	-	-	-	6	2	-	-	-	-
3	-	-	-	-	-	7	-	-	-	-	-
4	-	6	-	-	-	5	1	-	-	-	-
5	-	-	9	-	-	3	-	-	-	-	-
6	-	-	-	-	-	6	-	-	-	-	-
7	-	-	-	-	-	3	1	-	-	-	-
8	1	-	-	-	-	6	1	-	-	-	-
9	-	-	-	-	-	8	1	-	-	-	-
10	-	-	-	-	-	3	1	2	-	-	-
11	-	-	-	-	-	1	-	-	-	-	-
12	-	-	1	1	-	7	-	-	-	-	-
13	-	-	-	-	-	2	-	-	-	-	-
14	-	-	-	-	-	5	1	-	1	-	-
15	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	3	-	-	-	2	-
17	-	-	-	-	-	1	1	-	-	-	-
18	-	-	-	-	-	3	-	-	-	-	-
19	-	-	-	-	-	10	1	-	-	-	-
20	-	-	-	-	-	5	-	-	-	-	2
21	-	-	-	-	-	5	-	-	-	-	-

Sighting Totals

	EleM	EleF	Kudu	EIC4	Whog	Dkr	Eltk	Ghbl	Bab	Fire	Sett
	1	6	13	1	1	92	10	2	1	2	2

Date of Survey : 23/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 742 km^2
N : 79 n : 19
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Mukumbura 4
Base Line Length : 41.3 km
Calibrated Strip Width at 300ft : 457 m
t : 2.101
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	Catt	Shoa	Donk	Dkr	Bab	Wat	Sett	Gbk	Eltk	Vill	Ghbl	Pig	Whog	Log	EIC3
1	-	-	-	2	6	1	-	-	-	-	-	-	-	-	-
2	-	-	-	2	-	4	2	-	-	-	-	-	-	-	-
3	-	-	-	3	-	5	1	-	-	-	-	-	-	-	-
4	16	11	-	4	-	-	1	1	1	-	-	-	-	-	1
5	-	-	-	7	-	-	4	-	-	-	-	-	-	-	-
6	7	47	-	2	-	-	2	-	2	1	-	-	-	-	-
7	25	16	-	6	-	-	1	-	-	-	5	-	-	-	-
8	7	17	-	5	-	-	2	-	1	2	-	-	-	-	-
9	-	-	-	3	-	-	4	-	1	1	-	-	-	-	-
10	13	25	-	1	-	-	6	-	1	1	-	-	-	-	-
11	55	-	-	5	-	-	10	-	1	1	-	3	-	-	-
12	105	23	-	4	-	-	8	-	-	3	-	6	2	-	-
13	107	52	-	3	-	-	16	-	-	5	-	4	-	-	-
14	36	54	-	3	-	-	11	-	-	-	-	-	-	1	-
15	67	-	4	3	-	-	6	-	-	2	-	-	-	-	-
16	169	43	-	2	-	-	5	-	-	3	-	2	-	-	-
17	100	-	-	2	-	-	3	-	-	2	-	5	-	-	-
18	45	19	-	1	-	-	6	-	-	2	-	8	-	-	-
19	16	23	4	1	-	-	7	-	-	-	-	-	-	-	-

Sighting Totals

	Catt	Shoa	Donk	Dkr	Bab	Wat	Sett	Gbk	Eltk	Vill	Ghbl	Pig	Whog	Log	EIC3
	768	330	8	59	6	10	95	1	7	23	5	28	2	1	1

Date of Survey : 25/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 877 km^2
N : 102 n : 26
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chintholo 2
Base Line Length : 52.7 km
Calibrated Strip Width at 300ft : 457 m
t : 2.06
Observer : G Nyaguse D.Chipesi

Transect summary table :

T #	Kudu	Camp	Catt	Shoa	Donk	Dkr	Sett	Wat	Eltk	Bab	Vill	Fire	Ghbl
1	-	-	32	-	4	4	4	8	1	-	-	-	-
2	-	-	28	-	-	1	6	6	-	7	-	-	-
3	-	-	6	10	-	1	7	11	1	-	-	-	-
4	-	1	24	-	-	-	4	2	1	-	-	-	-
5	-	-	-	24	-	2	14	2	-	-	-	-	-
6	-	-	40	13	2	2	12	2	-	-	1	-	-
7	-	-	44	-	2	1	10	6	-	-	-	1	-
8	-	-	34	8	5	1	14	4	-	-	-	-	-
9	-	-	66	-	-	3	18	12	-	-	1	-	2
10	1	-	82	61	9	4	10	6	-	-	2	-	3
11	-	-	25	42	-	2	9	8	-	-	1	-	-
12	-	-	43	19	-	-	18	5	-	-	-	-	-
13	-	-	67	20	-	1	12	5	-	-	3	-	-
14	-	-	34	16	3	3	11	8	-	-	-	-	-
15	-	-	58	13	-	-	19	11	-	-	-	-	-
16	-	-	63	44	-	4	5	3	-	-	5	-	-
17	-	-	55	37	-	-	7	3	-	-	1	-	-
18	-	-	94	59	-	3	11	1	-	-	-	-	-
19	-	-	32	11	2	2	9	2	-	-	5	-	-
20	-	-	67	19	-	3	5	3	-	-	4	-	-
21	-	-	-	7	-	-	5	3	-	-	-	-	-
22	-	-	36	-	-	4	1	3	-	-	1	-	-
23	-	-	85	7	-	1	-	-	-	-	-	-	-
24	-	-	23	-	-	-	-	-	-	-	3	-	-
25	-	-	71	8	-	-	2	-	-	-	-	-	-
26	-	-	24	31	2	1	-	-	-	-	2	-	-

Sighting Totals

	Kudu	Camp	Catt	Shoa	Donk	Dkr	Sett	Wat	Eltk	Bab	Vill	Fire	Ghbl
	1	1	1133	449	29	43	213	114	3	7	29	1	5

Date of Survey : 27/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 549 km^2
N : 72 n : 20
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chitima 1
Base Line Length : 39.2 km
Calibrated Strip Width at 300ft : 457 m
t : 2.093
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	Hipo	Catt	Shoa	Donk	Dkr	Vill	Sett	Eltk	Log	Fish	Kap	Pig	Bpig
1	1	-	-	-	-	1	-	7	2	3	1	-	-	-
2	-	-	15	12	-	-	-	10	3	2	-	-	-	-
3	-	-	33	35	-	1	-	3	2	1	1	-	-	-
4	-	-	40	4	-	1	2	3	-	-	-	-	-	-
5	-	-	54	53	-	-	-	2	1	-	1	-	-	-
6	-	-	21	-	-	-	-	1	-	-	2	1	-	-
7	-	8	-	-	-	-	-	3	2	1	1	-	-	-
8	-	-	12	-	-	-	-	4	-	1	4	-	-	-
9	-	-	10	17	8	1	2	4	1	-	2	-	3	-
10	-	-	-	5	-	-	2	6	-	-	4	-	-	3
11	-	5	-	32	5	-	1	1	-	-	7	2	-	-
12	-	-	45	-	-	-	-	-	-	-	1	-	-	-
13	-	-	12	6	32	-	2	4	-	-	1	-	-	-
14	-	-	1	60	-	-	-	5	-	-	-	-	-	-
15	-	-	-	-	-	-	-	3	-	-	3	-	-	-
16	-	-	-	60	-	-	1	2	-	-	-	-	-	-
17	-	8	1	-	6	-	-	3	-	-	1	-	-	-
18	-	3	-	-	-	-	-	1	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	1	-	2	-	-	-

Sighting Totals

	EleM	Hipo	Catt	Shoa	Donk	Dkr	Vill	Sett	Eltk	Log	Fish	Kap	Pig	Bpig
	1	24	244	284	51	4	10	62	12	8	31	3	3	3

Date of Survey : 25/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 515 km^2
N : 45 n : 11
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chitima 3
Base Line Length : 23.3 km
Calibrated Strip Width at 300ft : 457 m
t : 2.228
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleF	ElC4	Shoa	Donk	Dkr	Sett	Eltk	Log	Ghbl	Vill	Wat	Bab
1	-	1	-	-	1	1	1	-	-	-	-	-
2	-	-	14	-	1	2	-	1	-	-	-	-
3	-	-	-	-	3	4	2	-	-	-	-	-
4	-	-	-	1	1	6	2	-	-	-	-	-
5	-	-	-	-	-	6	2	-	-	-	-	-
6	-	-	-	-	1	-	3	-	4	-	-	-
7	-	-	-	-	2	-	6	1	-	-	-	-
8	6	-	-	-	-	2	-	-	-	2	2	-
9	17	-	-	-	4	-	5	-	-	-	5	6
10	-	-	-	-	2	-	1	-	-	-	5	-
11	-	-	-	-	1	1	-	-	-	-	8	-

Sighting Totals

	EleF	ElC4	Shoa	Donk	Dkr	Sett	Eltk	Log	Ghbl	Vill	Wat	Bab
	23	1	14	1	16	22	22	2	4	2	20	6

Date of Survey : 26/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 555 km^2
N : 44 n : 11
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chitima 4
Base Line Length : 23.3 km
Calibrated Strip Width at 300ft : 457 m
t : 2.228
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	Shoa	Dkr	Eltk	Bpig	Log	Fire	Ghbl	Wat	Vill	Sett
1	-	2	3	-	-	-	-	-	-	-
2	-	5	5	-	-	-	-	-	-	-
3	-	2	3	-	-	-	-	-	-	-
4	-	-	4	2	1	-	-	-	-	-
5	-	-	3	-	1	-	-	-	-	-
6	-	2	2	-	-	1	-	-	-	-
7	-	-	2	-	-	-	2	-	-	-
8	-	2	-	-	-	-	-	2	-	6
9	7	1	-	-	1	-	-	2	1	5
10	-	1	1	-	2	1	-	2	-	2
11	-	-	-	-	-	-	-	3	-	-

Sighting Totals

	Shoa	Dkr	Eltk	Bpig	Log	Fire	Ghbl	Wat	Vill	Sett
	7	15	23	2	5	2	2	9	1	13

Date of Survey : 02/11/10
Stratum Locality : Cabora Bassa
Stratum Area : 706 km^2
N : 73 n : 21
Pilot : S. Rodger
Map overlay file : None

Stratum Name : Chintholo 1
Base Line Length : 41.9 km
Calibrated Strip Width at 300ft : 453 m
t : 2.086
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	EleF	Buff	Kudu	ElC4	Wat	Dkr	Eltk	Whog	Bpig	Fire	Sett
1	-	-	-	-	-	2	-	-	-	-	-	-
2	-	-	40	-	-	4	2	1	-	-	-	-
3	-	-	-	-	-	1	2	-	-	-	-	-
4	-	-	-	-	-	1	-	1	-	-	-	-
5	-	12	-	2	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	1	-	-	-	-
7	2	-	-	-	-	1	-	-	-	-	-	-
8	-	-	-	2	-	4	-	-	-	-	-	-
9	-	-	-	-	-	1	-	-	-	-	-	-
10	-	-	-	-	-	1	1	1	5	-	-	-
11	-	7	-	-	-	-	1	-	-	2	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	4	1	-	-	-	-	-
14	-	-	1	-	-	6	-	1	-	-	2	-
15	-	-	-	-	-	2	-	-	-	-	-	-
16	-	-	-	-	-	4	-	-	-	-	1	-
17	-	5	-	-	-	4	-	-	-	-	-	1
18	-	-	-	-	-	3	-	-	-	-	-	-
19	-	-	-	-	-	6	-	1	-	-	-	-
20	-	-	-	-	1	6	1	1	-	-	-	-
21	-	-	-	5	-	6	1	1	-	-	-	-

Sighting Totals

	EleM	EleF	Buff	Kudu	ElC4	Wat	Dkr	Eltk	Whog	Bpig	Fire	Sett
	2	24	41	9	1	56	9	8	5	2	3	1

Date of Survey : 20/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 1196 km^2
N : 109 n : 26
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chitima 2
Base Line Length : 52 km
Calibrated Strip Width at 300ft : 457 m
t : 2.06
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	Kudu	EIC3	EIC4	Catt	Shoa	Donk	Dkr	Vill	Sett	Eltk	Pig	Fire	Log	Bpig	Wat
1	-	-	-	-	38	6	4	1	2	2	2	-	-	-	-	-
2	-	-	1	-	31	12	-	-	2	-	3	1	-	-	-	-
3	-	-	-	-	-	-	-	2	-	-	7	-	-	-	-	-
4	-	-	-	-	-	-	-	1	-	2	3	-	-	-	-	-
5	-	-	-	1	8	-	-	2	-	5	5	-	-	-	-	-
6	-	-	-	-	-	-	-	5	-	18	4	-	2	-	-	-
7	-	-	-	-	4	-	-	2	-	21	3	-	1	-	-	-
8	-	-	-	-	-	-	-	-	2	9	5	-	1	-	-	-
9	-	-	-	-	6	-	3	5	-	3	4	-	-	-	-	-
10	1	-	-	-	-	10	-	-	-	7	4	-	-	4	-	1
11	-	-	-	-	-	-	-	2	-	6	8	-	-	1	-	-
12	-	-	-	-	-	-	-	1	-	2	2	-	2	1	-	-
13	-	-	-	-	-	-	-	3	-	2	2	-	-	1	-	-
14	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-
15	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
17	-	3	-	-	-	-	-	1	-	-	3	-	-	-	-	-
18	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	1	-	1	1	-	-	1	-	-
20	-	-	-	-	-	-	-	1	-	-	3	-	-	-	-	-
21	-	-	-	-	-	-	-	4	-	-	3	-	-	-	-	-
22	-	-	-	-	-	-	-	6	-	-	5	-	-	-	-	-
23	-	-	-	1	-	-	-	2	-	-	2	-	-	-	-	-
24	-	-	-	-	-	5	1	3	3	-	5	-	-	-	-	-
25	-	-	-	-	3	21	10	4	3	3	1	-	-	-	1	-
26	-	-	-	-	-	6	-	-	1	8	-	-	2	-	-	-

Sighting Totals

	EleM	Kudu	EIC3	EIC4	Catt	Shoa	Donk	Dkr	Vill	Sett	Eltk	Pig	Fire	Log	Bpig	Wat
	1	3	1	2	90	60	18	53	13	89	75	1	8	9	1	1

Date of Survey : 19/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 695 km^2
N : 83 n : 19
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Kachembe
Base Line Length : 39.5 km
Calibrated Strip Width at 300ft : 457 m
t : 2.101
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EIC4	Camp	Catt	Shoa	Donk	Vill	Sett	Dkr	Eltk	Fire	Gbk	Pig	Log	Ghbl	Wat
1	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-
3	-	-	5	11	-	-	6	-	-	-	-	-	-	-	-
4	-	-	20	-	5	-	6	1	-	-	-	-	-	-	-
5	-	-	3	4	-	-	9	-	-	-	-	-	-	-	-
6	-	-	9	6	-	-	7	-	-	-	-	-	-	-	-
7	-	-	24	13	-	2	7	1	-	-	-	-	-	-	-
8	-	-	3	-	-	1	3	-	-	-	-	-	-	-	-
9	-	-	12	-	-	-	3	1	-	-	-	-	-	-	-
10	-	-	8	-	-	1	2	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
12	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
14	-	-	-	6	-	-	4	1	1	1	-	-	-	-	-
15	-	-	-	-	-	2	5	7	-	-	-	-	-	-	-
16	-	-	6	17	-	3	12	2	-	-	1	-	-	-	-
17	-	-	26	30	-	2	13	6	5	-	-	3	-	3	-
18	-	1	1	16	-	-	6	4	3	-	-	-	1	-	1
19	-	-	-	3	-	-	9	19	1	-	-	4	1	-	-

Sighting Totals

	EIC4	Camp	Catt	Shoa	Donk	Vill	Sett	Dkr	Eltk	Fire	Gbk	Pig	Log	Ghbl	Wat
	1	1	117	106	5	11	101	43	11	1	1	7	2	3	1

Date of Survey : 01/11/10
Stratum Locality : Cabora Bassa
Stratum Area : 1253 km^2
N : 113 n : 28
Pilot : S. Rodger
Map overlay file : None

Stratum Name : Chintholo 3
Base Line Length : 57.1 km
Calibrated Strip Width at 300ft : 453 m
t : 2.052
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	Kudu	Catt	Shoa	Dkr	Sett	Wat	Bab	Fire	Log	Eltk	Ghbl	Vill	Donk
1	3	-	-	1	1	1	-	-	-	-	-	-	4
2	-	-	-	-	-	2	6	1	-	-	-	-	-
3	-	-	14	3	3	4	-	1	2	-	-	-	-
4	-	-	1	2	2	7	-	1	-	-	-	-	-
5	-	-	-	2	-	1	-	-	2	1	-	-	-
6	-	-	-	1	2	1	-	1	-	-	-	-	-
7	-	-	-	5	-	-	-	-	1	1	-	-	-
8	-	-	-	2	-	2	-	-	2	5	-	-	-
9	8	-	-	12	-	-	-	-	5	4	-	-	-
10	4	-	-	7	-	-	-	-	2	4	-	-	-
11	2	-	-	5	-	-	-	-	1	2	-	-	-
12	-	-	-	2	-	-	-	-	4	3	-	-	-
13	-	-	-	5	-	-	-	-	1	4	-	-	-
14	-	-	-	5	-	-	-	-	-	3	-	-	-
15	3	-	-	4	-	-	-	-	1	5	-	-	-
16	-	-	-	3	-	-	-	-	-	5	-	-	-
17	-	-	-	3	-	-	-	-	2	2	-	-	-
18	-	6	8	3	2	-	-	2	3	6	3	-	-
19	-	-	52	2	3	-	-	-	-	4	-	-	-
20	-	-	-	5	4	-	-	-	2	6	-	-	-
21	-	-	-	2	6	-	-	-	2	1	-	-	-
22	-	32	93	2	7	-	-	-	2	2	-	1	-
23	-	-	14	1	8	-	-	-	-	2	-	-	-
24	-	-	50	1	2	1	-	-	1	2	-	1	-
25	-	-	-	3	3	-	-	-	3	-	-	-	-
26	-	-	7	-	5	-	-	-	-	2	-	-	-
27	-	30	-	-	1	-	-	-	3	3	-	-	-
28	-	1	-	1	2	-	-	-	2	1	-	-	-

Sighting Totals

	Kudu	Catt	Shoa	Dkr	Sett	Wat	Bab	Fire	Log	Eltk	Ghbl	Vill	Donk
	20	69	239	82	51	19	6	6	41	68	3	2	4

Date of Survey : 26/10/10
Stratum Locality : Cabora Bassa
Stratum Area : 944 km^2
N : 87 n : 23
Pilot : B. Eygabroad
Map overlay file : None

Stratum Name : Chintholo 4
Base Line Length : 46.6 km
Calibrated Strip Width at 300ft : 457 m
t : 2.074
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EIC4	Catt	Shoa	Donk	Dkr	Eltk	Sett	Wat	Ghbl	Vill	Croc	Whog	Log
1	-	51	6	-	1	2	5	3	-	-	-	-	-
2	-	-	21	-	-	1	6	4	3	-	-	-	-
3	-	-	27	-	2	1	4	-	-	1	-	-	-
4	1	7	-	-	4	-	5	4	1	-	1	-	-
5	-	14	-	-	1	-	7	6	-	-	-	1	-
6	-	-	16	-	3	-	3	3	-	-	-	-	-
7	-	3	-	-	1	-	3	7	-	-	-	3	-
8	-	4	-	-	3	-	2	10	-	-	-	-	-
9	-	7	39	-	4	-	6	8	-	1	-	-	-
10	1	-	-	-	7	2	3	2	-	-	-	-	-
11	-	-	4	-	1	1	2	-	-	-	-	2	-
12	-	-	-	-	1	1	1	3	-	-	-	-	-
13	-	-	-	-	-	1	3	1	-	-	-	-	-
14	-	-	-	-	-	-	4	1	1	-	-	-	-
15	-	-	-	-	2	-	4	1	-	-	-	-	-
16	-	-	-	-	3	-	4	1	-	-	-	-	-
17	-	-	8	-	-	2	5	2	-	1	-	-	-
18	-	-	-	-	-	-	-	2	-	-	-	-	-
19	-	5	-	-	1	-	4	1	-	-	-	-	2
20	-	-	-	-	2	-	2	2	-	-	-	-	1
21	-	-	-	-	2	-	2	-	-	-	-	-	-
22	-	-	-	-	-	-	-	1	-	-	-	-	-
23	-	-	-	3	2	-	-	1	-	-	-	-	2

Sighting Totals

	EIC4	Catt	Shoa	Donk	Dkr	Eltk	Sett	Wat	Ghbl	Vill	Croc	Whog	Log
	2	91	121	3	40	11	75	63	5	3	1	6	5

Date of Survey : 01/11/10
Stratum Locality : Cabora Bassa
Stratum Area : 1415 km^2
N : 103 n : 27
Pilot : S. Rodger
Map overlay file : None

Stratum Name : Chipembere
Base Line Length : 54.3 km
Calibrated Strip Width at 300ft : 453 m
t : 2.056
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	EleM	EleF	Kudu	ElC4	Catt	Shoa	Donk	Dkr	Wat	Log	Eltk	Sett	Vill	Fire	Ghbl
1	-	-	-	-	-	-	-	2	1	4	-	-	-	-	-
2	-	-	-	-	-	-	-	-	1	5	2	-	-	-	-
3	-	-	-	-	-	-	-	1	-	2	3	2	-	-	-
4	5	9	-	-	-	-	-	-	-	1	2	2	1	-	-
5	-	-	-	-	-	5	-	9	-	-	1	2	3	-	-
6	1	-	-	-	-	35	-	2	-	-	1	-	2	1	-
7	-	-	1	-	1	26	-	6	-	-	5	1	1	-	1
8	-	-	-	-	-	-	-	4	-	-	2	1	-	-	-
9	-	-	-	-	-	-	-	4	-	5	3	-	-	-	-
10	-	-	-	1	-	-	-	3	-	6	2	-	-	-	-
11	2	-	-	1	1	-	-	4	-	1	1	-	-	-	-
12	-	12	-	-	-	-	-	1	-	-	4	-	-	-	-
13	1	-	-	-	-	-	-	1	-	-	1	2	-	-	-
14	-	-	-	-	3	5	-	1	-	1	2	1	1	-	-
15	-	3	-	-	-	-	-	2	-	4	2	6	-	-	-
16	-	-	-	-	32	-	-	-	-	5	5	6	-	-	-
17	-	-	-	-	30	24	-	2	-	6	2	3	3	-	-
18	-	-	-	-	43	70	-	1	-	10	-	4	-	-	1
19	-	-	-	-	38	45	-	2	3	13	1	3	2	-	-
20	-	-	-	-	60	11	-	1	1	8	-	7	-	-	-
21	-	-	-	-	61	28	1	-	2	9	-	5	2	-	-
22	-	-	-	-	69	24	-	-	-	-	-	3	1	-	2
23	-	-	-	-	70	93	-	-	4	6	-	5	-	-	-
24	-	-	-	-	29	25	-	-	-	4	-	4	1	-	-
25	-	-	-	-	120	41	-	-	2	-	-	4	3	-	-
26	-	-	-	-	35	133	-	1	2	-	-	-	3	-	-
27	-	-	-	-	37	71	6	-	1	-	-	-	-	-	-

Sighting Totals

	EleM	EleF	Kudu	ElC4	Catt	Shoa	Donk	Dkr	Wat	Log	Eltk	Sett	Vill	Fire	Ghbl
	9	24	1	2	629	636	7	47	17	90	39	61	23	1	4

Date of Survey : 02/11/10
Stratum Locality : Cabora Bassa
Stratum Area : 938 km^2
N : 168 n : 43
Pilot : S. Rodger
Map overlay file : None

Stratum Name : Luenha
Base Line Length : 85.7 km
Calibrated Strip Width at 300ft : 453 m
t : 2.018
Observer : G.Nyaguse D.Chipesi

Transect summary table :

T #	Catt	Shoa	Sett	Wat	Vill	Dkr	Log	Fire	Bab	Eltk
1	-	-	1	1	-	-	-	-	-	-
2	76	18	-	-	2	-	-	-	-	-
3	23	33	-	1	1	1	-	-	-	-
4	30	58	-	1	2	-	-	-	-	-
5	47	31	-	-	2	2	2	-	-	-
6	47	-	-	1	-	1	-	-	-	-
7	81	43	-	-	-	-	4	-	-	-
8	17	25	-	-	1	-	2	-	-	-
9	33	-	6	-	-	1	9	-	-	-
10	2	-	7	-	-	1	3	-	-	-
11	-	-	9	-	-	-	1	-	-	-
12	13	4	6	-	-	-	1	1	-	-
13	17	-	8	-	1	-	-	-	-	-
14	17	-	7	-	-	-	1	-	-	-
15	16	57	-	-	1	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-
17	-	-	1	-	-	-	6	-	-	-
18	3	-	5	-	-	-	2	-	-	-
19	-	-	7	2	-	-	-	-	-	-
20	1	8	3	2	-	-	-	-	-	-
21	22	44	6	2	-	-	-	-	-	-
22	-	40	3	1	1	-	-	-	-	-
23	-	-	3	1	-	-	-	-	-	-
24	-	-	2	1	-	1	-	-	-	-
25	-	-	1	2	-	-	1	-	-	2
26	-	-	1	2	-	-	2	-	-	-
27	-	-	-	2	-	1	4	-	-	-
28	-	-	-	-	-	4	2	-	-	-
29	-	-	-	1	-	-	1	-	7	-
30	-	-	-	2	-	-	1	-	-	-
31	-	-	-	2	-	-	1	-	-	-
32	-	-	1	1	-	-	1	-	-	-
33	-	-	-	2	-	-	2	-	-	-
34	-	-	-	1	-	-	2	-	-	-
35	-	-	-	-	-	1	1	-	-	-
36	-	-	-	1	-	-	-	-	-	-
37	-	-	1	1	-	-	-	-	-	-
38	46	46	7	2	-	-	-	-	-	-
39	13	-	-	1	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-
41	6	-	-	1	-	-	-	-	-	-
42	14	-	-	-	-	-	-	-	-	-
43	12	22	-	1	-	-	-	-	-	-

Sighting Totals

	Catt	Shoa	Sett	Wat	Vill	Dkr	Log	Fire	Bab	Eltk
	536	429	85	35	11	13	49	1	7	2