

LAESRA 1993/032



AERIAL CENSUS OF WILDLIFE IN THE TAITA RANCHES

REPORT

BY

George Muriuki
Amar Inamdar
Iain Douglas Hamilton

14th October 1993

KENYA WILDLIFE SERVICE
P.O. BOX 40241 NAIROBI TEL 501081-2

Table of Contents	Page
List of tables	(i)
List of figures	(ii)
Summary	1
Introduction	2
Methods	2
Results	3
Discussion	5
Recommendations	6

LIST OF TABLES

	Page
1. Herbivore census data for ranches ranked in order of number of observations made per minute	3
2. Herbivore species seen during aerial censuses over the Western Taita Ranches, ranked in order of abundance	3
3. Tables with relative abundance of the different species of large herbivore seen on each ranch during census	4

LIST OF FIGURES

1. Taita Taveta District areas surveyed	(ii)
---	------

SUMMARY

A reconnaissance aerial census of wildlife was conducted in a number of ranches in the Taita area on the 1st and 2nd of October 1993. The objective of the census was to generate information on animal numbers and distributions which could be used by Community Wildlife officers and ranch managers as they develop proposals for wildlife utilisation in this area.

In the time available it was not possible to cover all of the area in sufficient detail to provide total numbers of all wildlife species. Instead, an effort was made to obtain an indication of the abundance, diversity and distribution of wildlife on those ranches that had already taken initiatives to develop their wildlife resources. These included Choke Ranch, Mbulia Ranch, Lualenyi Ranch and the Taita Hills Hilton Wildlife Sanctuary. In addition, some reconnaissance surveys were flown with Community Wildlife Service staff to provide them with an overview of the distribution of wildlife in other parts of the area.

Of the area surveyed in some detail the following results were obtained:

1. Overall, there is a trend of increasing animal abundance to the south and west of the Taita hills. The Bura and Mwatate rivers are important refuges for large numbers of buffalo, elephant and other water dependent species.
2. To the north of the Taita Hills, including Mbulia Ranch, Kishushe and Oza, very little wildlife was seen and densities were generally low
3. In the area to the south of the Taita Hills, and west of the Mwatate river, including Choke Ranch, Lualenyi Ranch and the Taita Hills Hilton, higher concentrations of all wildlife were seen, with some large herds of buffalo and elephant, especially close to the main river courses.
4. In the area adjacent to the Tsavo West park boundary and in the Kasigau group of ranches generally high concentrations of wildlife were seen, although it should be noted that this area was not searched systematically.

This census should be viewed as a preliminary indication of the distribution of wildlife in the western section of the Taita ranches during the dry season. With the onset of rains, it can be expected that wildlife distributions will differ markedly. It will be necessary to conduct a series of surveys at different times of the year before a comprehensive picture of wildlife numbers on the Taita ranches will emerge. It is also important to compile historical data from previous counts in the area (e.g. systematic surveys conducted by the Department of Resource Surveys and Remote Sensing, DRSSRS) to review seasonal changes in distributions.

INTRODUCTION

With the assistance of the KWS Community Wildlife Service, the Taita ranches are developing proposals for income generation from wildlife resources. A preliminary step in this process is to obtain information about the quantity and distribution of wildlife in the area. This information can be most reliably obtained from aerial censuses, although these should be augmented by ground counts for more detailed information on the animal populations (for example changes in seasonal distributions, and age and sex ratios). This report describes a preliminary aerial census of the wildlife in the western Taita ranches during the dry season (1st-2nd October 1993).

METHODS

Animals were counted from a small aircraft (Cessna 185 equipped with radar altimeter and GPS) consisting of four crew: the pilot (responsible for navigation and flying); front seat recorder (responsible for recording data); and two rear seat observers (responsible for counting animals on the ground and relaying this information to the front seat observer). A Trimble GPS was used to assist with navigation and processing of the count data after the flight. It was possible to map the precise flight path of the aeroplane over ground and thus accurately describe the areas covered. Analysis of the flight paths also made it possible to identify and eliminate any double counting of animal groups. Due to the considerable difficulties of estimating animal numbers from aircraft, it is important that both pilot and observers are well trained to conduct this type of census.

In order to obtain precise estimates of all large animal species on each of the ranches, it is necessary to conduct a total count. In this type of count, an attempt is made to cover all of the ground, and to count all of the animals. This is an extremely costly and time consuming operation (to total count all of the Taita ranches would take one aircraft approximately 8 days of flying 6 hours per day). In the event, an attempt was made to describe the relative abundance, diversity and distribution of the larger herbivores in the western Taita area by a combination of total counts and reconnaissance surveys. This should provide a reasonable base-line of information necessary for the development of management proposals for the region.

The census area reported here includes the ranches to the north and west of the Taita Hills, Lualenyi, the Taita Hills Hilton, Choke ranch, and other ranches to the west of the Mwatate river. In addition, a reconnaissance flight was made over the area adjacent to the Tsavo West park boundary and into the Kasigau group of ranches.

RESULTS

Table 1 summarises data obtained from the aerial census. Due to the constraints mentioned above, it has not been possible to generate estimates for total numbers of animals within ranches. Instead the number of animal observations per minute has been used to give a relative index of animal abundance for each of the areas covered.

Table 1. Herbivore census data for ranches ranked in order of number of observations made per minute.

AREA SURVEYED	Time spent searching	No. of animals recorded	No. of observations	No. of animals seen per minute	No. of observations per minute
Taita Hills Hilton	109	3414	187	31.32	1.72
Southern Park boundary & Kasigau	41	219	41	5.34	1.00
Stateland ranch	26	104	24	4.00	0.92
Choke	43	156	39	3.63	0.91
Ishangaiwishi area	20	106	18	5.30	0.90
Lualenyi	44	883	28	20.07	0.64
Oza	14	14	8	1.00	0.57
Kishushe	27	32	9	1.19	0.33
Mbulia	57	2	2	0.04	0.04

Table 2. Herbivore Species seen during aerial census over the western Taita Ranches, ranked in order of overall abundance.

SPECIES	NUMBER SEEN	Percent
Buffalo	2679	55.80
Impala	532	11.08
Zebra	530	11.04
Kongoni	367	7.64
Grants Gazelle	197	4.10
Elephant	115	2.40
Giraffe	103	2.15
Eland	78	1.62
Water buck	66	1.37
Ostrich	56	1.17
Lesser kudu	24	0.50
Gerenuk	21	0.44
Oryx	18	0.37
Warthog	15	0.31
Total	4801	100

RESULTS

Table 1 summarises data obtained from the aerial census. Due to the constraints mentioned above, it has not been possible to generate estimates for total numbers of animals within ranches. Instead the number of animal observations per minute has been used to give a relative index of animal abundance for each of the areas covered.

Table 1. Herbivore census data for ranches ranked in order of number of observations made per minute.

AREA SURVEYED	Time spent searching	No. of animals recorded	No. of observations	No. of animals seen per minute	No. of observations per minute
Taita Hills Hilton	109	3414	187	31.32	1.72
Southern Park boundary & Kasigau	41	219	41	5.34	1.00
Stateland ranch	26	104	24	4.00	0.92
Choke	43	156	39	3.63	0.91
Ishangaiwishi area	20	106	18	5.30	0.90
Lualenyi	44	883	28	20.07	0.64
Oza	14	14	8	1.00	0.57
Kishushe	27	32	9	1.19	0.33
Mbulia	57	2	2	0.04	0.04

Table 2. Herbivore Species seen during aerial census over the western Taita Ranches, ranked in order of overall abundance.

SPECIES	NUMBER SEEN	Percent
Buffalo	2679	55.80
Impala	532	11.08
Zebra	530	11.04
Kongoni	367	7.64
Grants Gazelle	197	4.10
Elephant	115	2.40
Giraffe	103	2.15
Eland	78	1.62
Water buck	66	1.37
Ostrich	56	1.17
Lesser kudu	24	0.50
Gerenuk	21	0.44
Oryx	18	0.37
Warthog	15	0.31
Total	4801	100

The following tables give the relative abundance of the different species of large herbivore seen on each ranch during the census. Total numbers do not denote estimates for these species on each ranch.

CHOKE RANCH

SPECIES	NUMBER SEEN	PERCENT
Impala	67	44
Zebra	30	20
Giraffe	25	16
Gerenuk	11	7
Lesser Kudu	7	5
Eland	5	4
Buffalo	4	2
Kongoni	3	2
Total	152	100

LUALENYI RANCH

SPECIES	NUMBER SEEN	PERCENT
Buffalo	740	84
Impala	46	5
Elephant	29	3
Giraffe	20	2
Kongoni	13	2
Ostrich	9	1
Oryx	9	1
Zebra	9	1
Grants Gazelle	5	0.7
Lesser Kudu	2	0.2
Gerenuk	1	0.1
Total	883	100

STATELAND RANCH

SPECIES	NUMBER SEEN	PERCENT
Impala	27	26
Grants Gazelle	21	20
Kongoni	20	19
Eland	13	13
Zebra	9	9
Giraffe	5	5
Ostrich	5	5
Lesser kudu	2	2
Gerenuk	1	0.5
Oryx	1	0.5
Total	104	100

TAITA HILLS HILTON WILDLIFE SANCTUARY, AND ADJACENT
AREAS (LUALENYI, CORRIDOR)

SPECIES	NUMBER SEEN	PERCENT
Buffalo	1935	56.68
Zebra	440	12.89
Impala	363	10.63
Kongoni	275	8.06
Grants Gazelle	113	3.31
Elephant	68	1.99
Water buck	66	1.93
Eland	55	1.61
Giraffe	42	1.23
Ostrich	30	0.88
Warthog	15	0.44
Gerenuk	8	0.23
Lesser kudu	4	0.12
Total	3414	100

PARK BOUNDARY INCLUDING KASIGAU RANCHES

SPECIES	NUMBER SEEN	PERCENT
Grants Gazelle	58	27
Kongoni	56	26
Zebra	42	19
Impala	29	13
Ostrich	12	6
Giraffe	9	4
Oryx	8	3
Eland	2	1
Lesser Kudu	1	1
Total	219	100

DISCUSSION

These data show that, during the dry season, the areas with the most wildlife are those ranches adjacent to the Park boundary south of the Taita hills. There is a concentration of wildlife in Choke, Lualenyi, Taita Hills Hilton, and the smaller ranches adjacent to this group. This concentration also corresponds with the Bura and Mwatate rivers which are clearly important as a dry season refuge for the more water dependent species.

At this time of year, the ranches to the north of the Taita hills have few wild herbivores. Despite a prolonged search in Mbulia, for example, only two animal observations were made.

The most widespread and common herbivores over the whole area were Impala, Zebra, Kongoni, Grants Gazelle and Giraffe. Buffalo and Elephant were also numerous, although their distributions were very localised (mainly Lualenyi and Taita Hills Hilton). This was expected for these two species at this time of year, and it is likely that the distribution patterns will change considerably with the onset of the rains.

Even with highly trained observers, it should be noted that a number of external factors are likely to affect the rate of animal observations. These might include animal size (larger animals such as elephant are more visible than smaller animals such as Gerenuk) and the structure and density of woody vegetation (less animals are likely to be seen in dense bush compared with more open country).

RECOMMENDATIONS

Whilst this current census provides a base-line of information against which later data can be compared, it is essential that more comprehensive information on the wildlife in the Taita ranches is obtained. It is proposed that:

1. Data from previous herbivore surveys should be obtained from the Department of Resource Surveys and Remote Sensing (DRSRS) in order to review seasonal trends in distributions. These data could be used to identify areas of interest which merit further investigation.
2. A total count of all or some of the ranches in the Taita area should be conducted, preferably during the wet season. This will provide valuable information on seasonal changes in the abundance and distribution of herbivores. One possible opportunity for this might be during the KWS Tsavo total count, scheduled for December 1993/January 1994. The Taita total count should be planned well in advance, with its own budget, and a formal description of objectives and required outputs.

ACKNOWLEDGEMENTS

The Taita Hills Hilton Wildlife Sanctuary, Hilton International, contributed to the costs of this survey. We are personally grateful to Mr. Jon Bundy, the Hilton General Manager for his warm hospitality in accommodating the crew and other KWS staff during this exercise.