

# Monitoring Elephant and Rhino Trends in Kenya

Activities of the Kenya Rangeland Ecological Monitoring Unit (KREMU)

Baseline information on the populations and distributions of the African elephant (*Loxodonta africana*) and the black rhino (*Diceros bicornis*) was obtained during KREMU's 1977 and 1978 aerial surveys of all pastoral rangelands in Kenya. Population trends were determined by comparing population estimates for 1977 and 1978 for the entire rangelands and also comparing these values with results from 1980 surveys in southern Kenya, and 1981 survey results from northern Kenya. The 1983 surveys have just been analysed and the results can be seen in the table.

The aerial surveys were conducted along straightline transects in which the two rear-seat observers counted all animals observed within a strip of land 112 m wide on each side of the aircraft while the Cessna 185 aircraft flew at 91 m (300 ft) above ground level at a speed of 150 kph. Transects were spaced 10 km apart in 1977 (2.2% sampling intensity) and 5 km apart in 1978 (4.4% sampling intensity). During 1980 and 1981 surveys were conducted with two Partenavia aircraft. The 1980 strip width was 125 m on each side of the aircraft (5.0% sampling intensity), while in 1981 northern Kenya surveys, the strip width was 200 m, giving a sampling intensity of 8.0%.

The 1977 and 1978 surveys of southern Kenya were conducted during the wet (January-May) season while the 1980 surveys were during the dry (July-October) season. The northern Kenya surveys in 1977 and 1978 were dry (August-October) season while the 1981 surveys were wet (February-April) season. This provided useful information on the distributions of animals during both wet and dry seasons.

Minimum and maximum populations of elephants for all of Kenya were 64,800-97,600 in 1977 compared to 49,300-77,000 in 1978 and 39,700-55,000 in 1980-81. The 1978 population was 73.5% of that in 1977 showing a significant decline in the population in one year. The ratios of live to dead elephants decreased from 80:20 in 1977, 67:33 in 1978 and to 58:42 in 1980-81, providing further evidence of declining population. All except 5,000-10,000 of these elephants were on the 500,000 km<sup>2</sup> pastoral rangelands with most occurring in the south-central, east-central-coastal and south-eastern regions especially in the Hola, Ijara, Tsavo, Lamu, Mtito Andei and Jipe eco-units. Their numbers were also relatively high in the Laikipia, Meru and Mara eco-units.

The 5,000-10,000 present in the Agricultural Zone were found mainly in the Aberdare and Mt. Kenya National Parks (2,000 in each), Mt. Elgon and the Mau Forest.

Within the southern Kenya rangelands, the elephant population declined by 42.3% from 52,000 in 1977 to 30,000 in 1980. About 50% of the southern Kenya population occurred in the south-east eco-region. Populations in each of the south-east and the east-central-coastal eco-regions declined by about 8,000 elephants between 1977 and 1980. The reduction was especially noticeable in the Lamu eco-unit. The elephant population increased by 26.5% from 7,343 in 1977 to 9,286 in 1981 within the northern Kenya rangelands. About 69% of the entire northern Kenya population was in north-central eco-region C. In the northern Rift Valley eco-region A, an increase of 67.6% between 1977 and 1981 was observed,

but a decrease was noticed in the north Turkana eco-unit. In the northern Volcanics, eco-region B, a decrease was noticeable, and more so in the Chalbi eco-unit where no sightings were made during the 1978 and 1981 surveys.

The north-east eco-region D was not surveyed in 1981 due to security reasons, but Meru and Garissa eco-units were included in the 1980 southern Kenya surveys.

Major differences in seasonal distributions of both elephants and rhinoceros are shown in the KREMU 1981 report.

Maximum populations of rhinoceroses were 3,636 in 1977, 1,468 in 1978 and 1,100 in 1980-81 for the entire rangelands of Kenya. Another 300 animals existed in portions of the Agricultural Zone such as in the Aberdares.

For the entire rangelands, the rhinoceros population declined 60% during the one-year period of 1977 to 1978 while in southern Kenya the population declined a further 35.9% between 1978 and 1980. The greatest reduction occurred in the south-east eco-region, especially the Tsavo, Mtito Andei and Jipe eco-units.

The 1980-81 rhinoceros population throughout Kenya was probably about 1400 animals.

The distribution of rhinos continued to decline in southern Kenya; they were observed in eight eco-units in 1977, seven in 1978 and only four in 1980. None was observed during the northern Kenya surveys in 1981.

The very low and declining rhinoceros population and its shrinking distribution presents a grave situation that warrants increased action to arrest and reverse this trend especially in Tsavo, Mtito Andei, Jipe, Hola and Meru eco-units. The downward trend in elephant numbers has slowed-up between 1978 and 1980-81, and it is not as alarming as for rhinos but it is still critical enough to warrant increased conservation measures.

KREMU should continue to monitor the populations and distributions of elephants and rhinos throughout the Kenya rangelands on a periodic basis, for example once every three years. For the smaller, major ranges of these species, more detailed sampling is required, e.g. a sampling intensity of 25-30% once every five years.

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Table 1) Summary KREMU's elephant and rhino population estimates by district (1977-1983).

District	1977		1978		1980-81		1983	
	Elephant	Rhino	Elephant	Rhino	Elephant	Rhino	Elephant	Rhino
Baringo	0	0	nd	nd	142	0	nd	nd
Garissa	611	44	7673	0	nd	nd	3661	0
Isiolo	228	0	1722	0	nd	nd	nd	nd
Kajiado	484	0	76	47	646	0	655	0
Kilifi	1586	0	25	0	338	0	72	0
Kitui	2671	233	4134	0	3698	160	699	0
Kwale	0	0	0	0	nd	nd	224	0
Laikipia	3524	0	2577	0	1786	0	nd	nd
Lamu	4916	0	1909	39	3535	41	2118	0
Mandera	612	0	342	0	nd	nd	nd	nd
Marsabit	1685	0	112	0	231	0	nd	nd
Narok	1174	136	2668	218	2274	0	2474	0
Samburu	1702	0	nd	nd	935	0	nd	nd
Taita/Taveta	13324	981	17552	234	12898	91	12291	76
Tana River	9483	252	3565	0	5745	119	1340	0
Turukana	1361	0	nd	nd	1156	0	nd	nd
Wajir	0	0	93	0	nd	nd	nd	nd
West Pokot	0	0	nd	nd	192	0	nd	nd
<b>Total</b>	<b>43979</b>	<b>1646</b>	<b>42448</b>	<b>538</b>	<b>33576</b>	<b>411</b>	<b>23534</b>	<b>76</b>

1. Estimates extracted from: Peden, O (1984) Livestock and wildlife population inventories by district in Kenya (1977-1983). KREMU Technical Report Number 102.  
2. Animals residing in high elevation mountain parks are not included in this table, which explains any differences in national totals given in text.  
3. Totals do not necessarily include all animals from all districts because not all districts were surveyed each year. ('nd' indicates no data were available.)