

SECOND INTERIM REPORT: SELOUS GAME RESERVE, TANZANIA:DRY SEASON CENSUSMETHODS

The second aerial count of the Selous Game Reserve was carried out between 21st August and 20th September, 1976. The same methods were used as in the first count with a few improvements. The same crew other than Mr. George Mgongo who was unable to attend and who was replaced by Mr. William Sumai, seconded temporarily from the National Parks. New methods which were used included demarkating the counting strips with fixed rods attached to the wing struts, and in taking more intensive altimeter readings when flying over mountainous areas. Habitat monitoring was recorded as before except that elephant damage and visibility were related to actual quantities rather than a subjective index.

Fewer hours were flown since we were more familiar with the area and were able to eliminate dead time. The count was also performed without any break. However, the crew was at times excessively fatigued and in future counts I would recommend a rest break half way through.

In the three areas of Mikumi, Mbarangangu and Beho-Beho we sampled the age structure of the elephant populations by vertical aerial photography.

RESULTS

All animals were recorded as in the previous count and daily summaries were made of each transect flown, with totals for each species in each cell of the overall grid. These daily summaries meant that at the end of the count, distribution maps could immediately be made without any further analysis. In order to calculate estimates with confidence limits and to perform more elaborate analyses, all data is currently being entered on computer cards under the direction of Mr. Alan Rodgers in Dar es Salaam.

The distribution of elephants showed little change from the wet season other than in Mikumi National Park and the Matandu area of eastern Selous where they tended to leave the plains and occupy the thickets on the hills. Notwithstanding this slight change, visibility was far better since the long grass was mainly burnt and the *Brachystegia* species had dropped their leaves, leaving a mesh of branches through which elephants were usually clearly visible. In consequence, our estimates were higher. The figures below summarize the elephant data although they may be revised when the final analysis is complete.

<u>AREA</u>	<u>METHOD</u>	<u>No. Eles Est.</u>	<u>Density E/km²</u>	<u>Dead/Live Ele Ratio</u>	<u>Size of Area</u>
Inside Park	Sample Count	88,221	1.85	4:100	47,573 sq.k
Outside Park	Sample Count	21,842	.82	9:100	26,706 sq.k
Total area sampled	Sample Count	110,063	1.48	5:100	74,279 sq.k

Final conclusions must await a more detailed analysis which is yet to be performed, but these preliminary findings show interesting features.

1. Elephant mortality is evidently higher outside the Reserve than inside, while the density of elephants is the converse.
2. The total number is the largest ever recorded for a continuous elephant population although the overall density of 1.54 is similar to many other areas.
3. Although we found several poachers' camps and most carcasses were concentrated in the northern end of the Reserve, poaching is low compared to other areas in East Africa. For example, in Kabalega National Park south of the Nile the ratio of dead to live elephants is 53:100 (I.U.C.N./S.S.C. March 1976 count), and in Tsavo there are actually more dead elephants to be found than live with a ratio of 103:100 (Tsavo Research Project September 1976 count).

In conclusion these two preliminary counts provide a framework for future research in the Selous. For the next few years it would be better to make smaller counts in specific areas rather than to repeat a census of the whole ecosystem. It would only be necessary to repeat such a grand census in five or ten years time.

In order to complete the computer analysis as soon as possible I would recommend that Mr. Bakari Mbanjo and Mr. Alan Rodgers should come to Nairobi in the near future for consultation on the exact form and techniques to be used. The analysis can then be performed on the Treasury computer.

I hope that the training programme which we completed during the course of this survey will provide a nucleus for the Game Division which may be able to form a team that can carry out similar censuses in other areas of Tanzania. The strip sampling method which we adopted is the most economical census method which gives low confidence limits and distribution data. It would, however, depend on the fitting of a radar altimeter to one of the Game Division aircraft.

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Iain Douglas-Hamilton

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