6.2.2. TOWARDS THE INTERPRETATION OF AERIAL SAMPLE CENSUS DATA FOR RHINOS

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Census of rhinos, both from the air and the ground is notoriously difficult, because they occur at relatively low density, for the most part singly, and are of somewhat cryptic coloration and habits. Behaviour patterns and type of habitat cause variations in countability.

Degrees of census accuracy and method employed depend to a large extent on purpose and resources. The most accurate way is an in-depth study to recognise individuals and home ranges. Failing this, a more rapid indication of population size can be gained by ground or aerial counts, total or sample, using sightings or indirect signs, depending on size and type of area and resources. Examination of aerial methods in small areas in Hluhluwe G.R. (Hitchins, P), Laikipia (Brown, M., Elliot,R. pers comm.) and Meru N.P. (Kenya Rangeland Ecological Monitoring Unit KREMU) indicated that a helicopter total count gives most accurate results, followed by fixed wing aircraft total counts, followed by sample counts. However, the more accurate the method, the more expensive. If the objective is to gain a broad picture from a vast area, counts designed to be accurate for rhinos are logistically and economically impossible and the best use has to be made of existing or multi-purpose data.

Systematic aerial sample counts are a method which has been widely employed over large parts of wildlife areas of Africa. The objective of this paper is therefore a preliminary examination, as a basis for discussion, of a variety of tests of the standard sample method to aid interpretation of such data for rhinos.

It considers a comparison of a long-term series of 68% samples over a relatively known, low density population in Amboseli by Western, who found that there was large variation between individual counts, but overall a correction factor of 1.8 gave a reasonable population estimate.

Aerial census figures for rhinos from the rangelands of Kenya at 22% and 45% sampling intensity by KREMU were interpreted by correcting x 2, which gave a figure that tied closely to a country estimate made using other methods. However, detailed tests of the Meru area at sampling intensities between 9.5 and 31% gave very varied figures for rhinos.

The method was tested by Hillman and Douglas-Hamilton over a roughly known population in Nsefu Game Reserve in Luangwa Valley at 8 and 16% sampling intensity. The higher intensity was reasonally accurate, but the lower gave variation above and below.

The sample method was also tested by Hillman, together with a total count over an accurately known population of both black and white rhinos on a Kenyan ranch. Sampling was done at 42% and analyzed at a variety of intensities. The estimates for black rhino at high intensity were either similar or of the order of 75%, while the estimates for white rhino varied above and below the true figure, and the attempted total count was well below.

At very high sampling intensities aerial census data for rhino can be reasonably accurate without correction factors. At lower intensities the variation from single counts is so great that only under certain conditions can correction factors be interpreted at this stage. The variations, limitations and usefulness of this type of data are discussed and preliminary conclusions made on interpretation and factors to be considered.