A PHOTOGRAPHIC METHOD FOR IDENTIFYING BLACK RHINOCEROS INDIVIDUALS

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INTRODUCTION

A fundamental requirement for the successful monitoring of a rhino population is the positive identification of each individual animal by way of its physiological and morphological characteristics. Such features include age and sex, front and rear horn shapes, body scars and blemishes, the location of cuts and notches on the ears, the extent and distribution of the fringe of hair on the ears, the skin creases under the front horn and between the nostrils, and finally, the size and individual pad lines on the base of the feet. Occasionally, even behavioural characteristics are a useful aid to the identification of individual animals.

The larger the population under study, the greater the problem becomes in recognising the individual physical characteristics of each animal. Normally, the most obvious individual identification characteristic of a rhino is its two horns. However, two or more animals can have horns so similar in size and shape that positive identification becomes very difficult, particularly when observations are being conducted either in heavy bush or at long range, or when an assessment has to be made in a hurry. The proficient use of a suitable camera with a telephoto lens alleviates many of these problems.

Photography, to a great extent, clarifies the exact shape and size of the horns of each individual animal, thus providing a useful method of identifying one animal from another.

During a recent study of the 40 black rhinos resident within the Masai Mara National Reserve in Kenya, a method was devised whereby not only the shape and size of horns were ascertained but also their actual measurements were determined with reasonable accuracy.

METHOD

On every possible occasion during surveillance operations, a profile photograph (side not important) of the head of each animal encountered was taken.

Each profile portrait was taken in silhouette against the background of the sky or at least with a blurred background, and was taken as close as possible to the animal, depending on the lens in use, so that the rhino's head filled the picture.

Before printing each negative, a suitable size template was prepared from a photograph of an adult black rhino (sex immaterial) in distinct profile. It is important that either or both the left or right nostril and eye are clearly defined on the template, as illustrated in Figure 1.
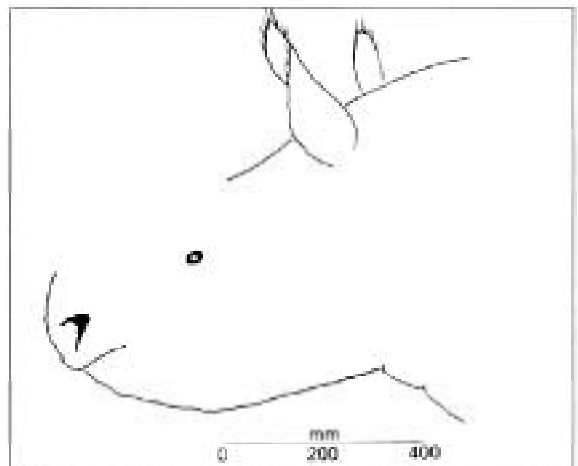

Figure 1. Template of head profile, showing position of nostril and eye, onto which horn details are added to give precise identification picture.

The negative was then inserted into the enlarger and the template placed below the enlarger lens. The enlarger was then adjusted either upwards or downwards until the head of the rhino in the negative was superimposed, with its nostril, eye and head profile as close as possible to the head details on the template. The template was removed and its place taken by photographic paper. The exposure was made and the paper developed, as shown in Figure 2.

Figure 2. Negative image adjusted in the enlarger to fit the template as dose as possible.

Based on the known measurement of ca.260mm between the nostril and the eye of an adult black rhino (Rob Brett, pers.comm.), it was then possible, with reasonable accuracy, to determine the length and shape of each of the horns of the photographed animal. In addition, the forward and/or backward tilt of the horns on the animal's head were ascertained. The result was a much more accurate portrayal of the shape and size of the animal's horns than that obtained from a field sketch, as demonstrated in Figure 3.
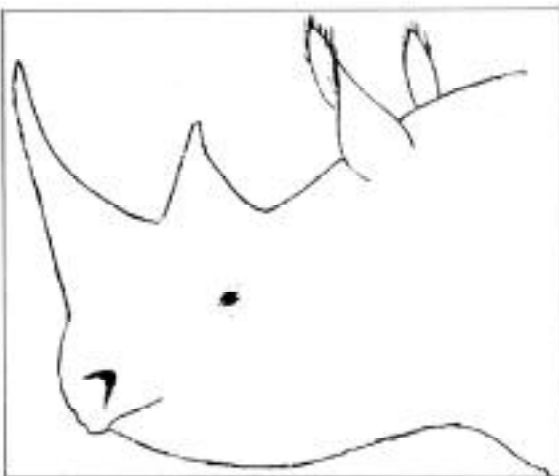

Figure 3. Negative image superimposed on template to give precise identification picture of "Wanjiru" in October1993.

As shown in Figure 4, the final results are then transcribed, with the aid of tracing paper, to the individual identification card of the animal concerned.

Figure 4. An example of an identification card

CONCLUSION

Photographic information of this nature, together with other known individual physiological and morphological characteristics, renders individual rhino identification and monitoring records more reliable. It helps to provide a dependable and ongoing record of subtle horn changes that take place, and which often can only be established by photography. It also helps to identify those animals with horn characteristics which are superficially similar, to the print of possible confusion. As horn characteristics slowly change over time it is recommended that each animal in a population be suitably photographed at least once every two years, and more frequently if possible.

ACKNOWLEDGEMENTS

Photo credit: Max Morgan-Davies

An adult female black rhinoceros Diceros bicornis michaeli in the Masai Mara National Reserve, Kenya.