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A USEFUL MARKING METHOD FOR FREE LIVING MAMMALS*

by

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Abstract—A paint-spraying device was employed for marking wild African mammals without capture. This relatively inexpensive marking technique, which had originally been used for the marking of American desert bighorn sheep at drinking places, was also successfully applied in the marking of impala, *Aepyceros melampus*, blue wildebeest, *Connochaetes taurinus*, Burchell's zebra, *Equus burchellii antiquorum* and the African elephant, *Loxodonta africana*. The apparatus used differs in some respects from that originally described by Hanson (1964). It was also used for the marking of animals from a mobile unit and away from fixed drinking places.

Introduction

The capturing of game for marking purposes is usually time consuming and expensive and often causes disruption of group structure and disturbance of natural movements and activities.

It was attempted to overcome these problems by the development of a marking system whereby many wild animals could be marked in a relatively short time without capture, at low cost and without undue disturbances.

The necessary apparatus was developed in collaboration with the Engineering Section of the National Parks Board and successfully tested and used on captive and freeliving wild animals in the Kruger Park.

Materials and Methods

It was envisaged that some mechanical devise projecting a spray of some marking substance onto animals would present a practical marking system.

A manually-triggered paint-spraying device, developed for this purpose, has subsequently been found to be very similar to a system developed by

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Hanson (1964) and Simmons and Phillips (1966) for the marking of American desert bighorn sheep. Our system consists of a thick-walled paint tank with a capacity of 4,5 litres, made from a metal water pipe with an internal diameter of 12,5 cm and fitted with an air valve from a truck innter tube. It also has a screw-capped inlet and a metal pipe outlet connected to a thick walled hose 8 metres long which extends to a cord-triggered spray nozzle mounted onto a metal post (see Fig. 1).

The paint container was usually filled to about 25 % of its total capacity with diluted white P.V.A. water soluble paint, produced by Albertono Paints (Pty.) Ltd., and then pressurized with an automobile plug pump to ± 7 bar (± 100 lb./sq. inch). At this stage this apparatus was ready for use as the paint in the pressurized tank could be released in the form of a powerful spray.

When game was marked at waterholes the spray nozzle was placed adjacent to their preferred drinking places. The paint container was then buried some distance away with only the upper parts protruding for subsequent refilling and pressurization. Paint spraying was regulated by the trigger-cord, extending from the spray-unit to an operator in a Land-rover or other closely parked vehicle.

Detailed notes were made of the different animals marked. The distribution of paint marks on every animal was described to aid subsequent identification while observations on herd composition and subsequent behaviour were also annotated.

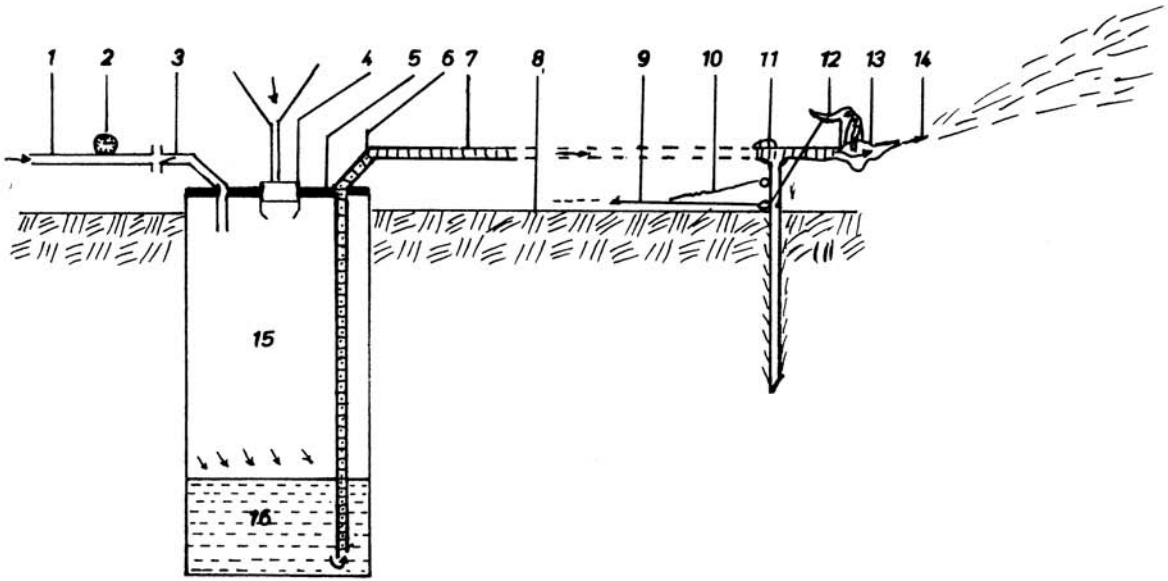
The device was also used for the marking of game at their grazing grounds, away from water. The apparatus was then carried in a Land-rover and animals standing close to the vehicle (mostly impala and wilde-beest) were sprayed through the Landrover's window. Use was sometimes made of a powerful spotlight to blind impala at night before approaching and marking them.

Results and Discussion

The described marking system was found exceptionally useful and effective for the intended purpose, i.e. the large scale marking of wild mammals, without capture, for subsequent short term studies of herd structure, movement patterns and drinking intervals (Young, 1970).

The animals could not only be marked at relatively low cost but were also not disturbed to any significant degree by this marking procedure; some of them being completely unaware of the fact that they were being marked (see Fig. 2).

The spraying device can be used effectively for the marking of animals as far as 8 metres from the spray nozzle and, depending on the marking intensity required, variable numbers can be marked before the paint container has to be refilled or repressurized. Various paints and dyes, including commercial fur dyes, may be used to colour-mark wild animals (Giles, 1969 and Hanson, 1964). These must possess marked staining



EXPLANATION

1	Automobile plug-pump attachment.	9	Trigger cord.
2	Air pressure meter.	10	Rubber spring.
3	Air valve.	11	Metal post.
4	Screw cap.	12	Trigger.
5	Pressurized paint tank.	13	Spray nozzle.
6	Metal elbow and connection pipe.	14	Projected paint.
7	Thick-walled hose.	15	Compressed air.
8	Soil surface.	16	Paint under pressure.

Fig. 1: Schematic diagram of paint-spraying device for marking game.

Fig. 2: A drinking blue wildebeest being marked.

properties and should preferably be used in combination with chemical agents enhancing penetration of oil impregnated ectodermal structures and which fixes the colouring matter to the animal's tissues when long lasting marks are required. It should, however, be emphasized that long lasting marks are not always indicated, especially if large numbers of animals have to be marked in game sanctuaries frequented by animal enthusiasts and photographers.

Experiments are at present being undertaken in the Kruger National Park to establish the staining properties and durability of various colouring materials on the pelage of different South African mammal species.

Observations on animals, marked with the P.V.A. water soluble paint, showed that the white colour was still observable on the horns of buffalo, wildebeest and impala after one to two months and relatively unchanged on the hair of wildebeest and zebra after 5 days. Colour frequently faded after 3 days on impala hair and was sometimes washed off after a while in the case of elephant. Colour marks nevertheless lasted long enough for our short term observations and could be made more permanent by the use of more durable paints or dyes.

The water soluble P.V.A. paint used did not only prove to be effective for the temporary marking of the mentioned species but also presents the advantages of being virtually odourless and tasteless and apparently of very low toxicity. Water in drinking troughs, often contaminated with paint, was nevertheless used without reluctance or adverse effects on the study species.

It is my considered opinion that large scale and short term marking on free living big mammal species can be accomplished at lower cost and with less disturbance by the use of paint or dye propelling devices, either from helicopters, vehicles or stationary at waterholes or other frequently visited communal gathering places, than by any other marking system so far developed. The accumulation of valuable and much needed ecological data can be enhanced by the more extensive use of such marking techniques.

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