SOME MARKING METHODS USED ON A VARIETY OF SOUTHERN AFRICAN RAPTORS

A.C. Kemp.
Transvaal Museum,
P.O. Box 413,
Pretoria,
0001.

INTRODUCTION

During 1976 I have been initiating a study on a variety of raptor species that live in the grasslands near Pretoria. I want to know them individually, to learn the intimate details of their lives and associations, and so have had to develop a means of marking them. The mark must be permanent and unique for each bird. However, I am also interested in whether any of the young birds reared in the area eventually form part of the breeding population. The young birds disperse, and there is likely to be high juvenile mortality, so rather than use up the limited individual marks I also require a temporary mark to recognise them if they return to breed.

The marking methods I have chosen have evolved from past experience of my own, and from consulting the literature and other workers. I shall consider the pros and cons of my methods, compare them with the alternatives and finally suggest some possible future developments.

SHORT TERM MARKING

Temporary marking of immature birds is done by cutting wing windows, as shown in Figure 1. No more than two windows are made in any one individual, providing 22 individual combinations. Forty-four combinations are possible if a tail window is included. Windows are cut 10 mm long in the smaller species (Black-shouldered Kite Elanus caeruleus, Greater Kestrel Falco rupicoloides, Little Banded Goshawk Accipiter badius), about 20 mm long in the medium-sized species. (African Marsh Harrier

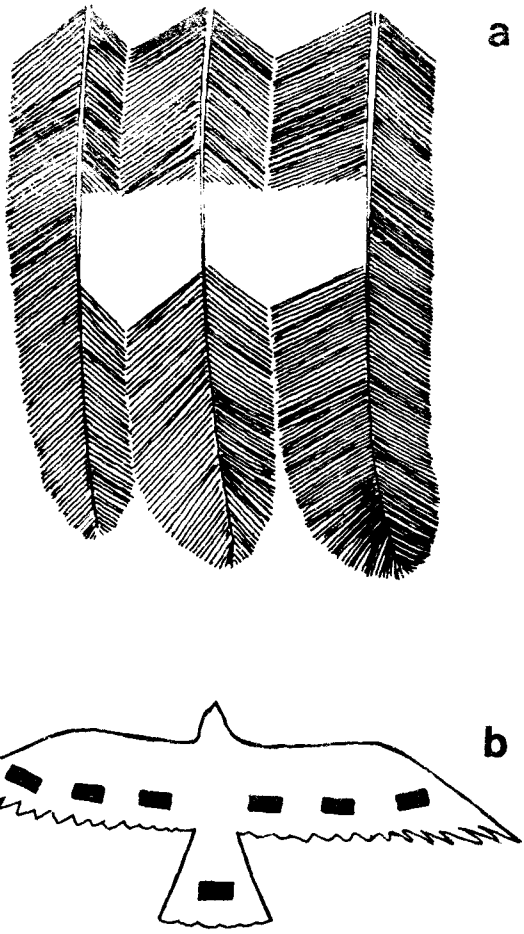

Fig. 1

a) Diagram of three feathers showing the extent cut away from each to form a wing window

b) Diagram of a flying raptor showing the position of the six sites in which wing windows can be cut, and the single tail window

Circus ranivorous), and up to 50 mm with large species such as eagles (Snelling 1971) or the Whitebacked Vulture (Kemp & Kemp 1975).

The visibility of the windows is good but of course restricted to when the bird is flying. Individuals of smaller species can be identified readily at 200 m even up to 400 m, while larger species may be identified at 800 m. The holes have not been yet recorded to hamper the bird in any way, and only disrupt a small portion of the wing area. The windows are simple and quick to apply, and do not weaken the feathers or attract attention to the bird as dyes, bleaches or imping coloured feathers might. All these marks are lost when the bird moults and can only be used for temporary marks or short-term studies - which may be as long as two years for the larger species. In the present work the same marks can be used each nesting season, as they will have been moulted by the immature of the previous season.

The immature birds are also marked with a numbered metal ring to identify them if they are trapped as adults.

LONG TERM MARKING

Colour ringing:

The rings are made of the same Darvic plastic material used for vulture rings (Ledger 1974) but are cut and shaped to the same dimensions as 8 mm metal rings. They are made with a flange and pinned on in the same way as vulture rings. For Greater Kestrel adults, two colour rings are placed on one leg, and a numbered metal ring on the other leg. Eleven birds so marked have survived up to eight months without obvious problems - four of the birds having had a metal ring for at least the previous two years.

Three African Marsh Harriers were also marked with a 10 mm colour ring and a metal ring, but this species so infrequently perches with the legs visible that the method is being discontinued.

Patagial tagging:

Tags have been made and attached after the method suggested by Picozzi (1971) and illustrated in Figure 2. The tags have been used as plain colours, and as colours with a letter engraved through one layer of the laminated plastic to show as a different colour. Five Black-Shouldered Kites so marked have survved up to four months without obvious problems, three of the birds initiating breeding cycles and a fourth completing a cycle. A numbered metal ring is also attached to the leg of each bird.

A captive Greater Kestrel loose in an aviary was never worried by a tag which it carried for five months. A captive Wahlberg's Eagle (Aquila wahlbergi) is showing no problems with a 37 x 33 mm tag anchored with 16 mm diameter washers, after five months during which it has been regularly flown.

Colour rings and the letters on tags are only visible on stationary birds up to 100 m distance using 10 x binoculars. However, tags can be seen on perched or flying birds at up to 800 m distance, drawing attention to a marked bird whose individual identity can then be followed.

FUTURE PROSPECTS

Any form of marking provides some form of hazard for the individual concerned. Marking must therefore only be used when essential to a project and the marking methods must keep the handicap for the individual bird to a minimum. The number of rings which a bird need carry would be reduced if colour rings could be made with numbers and a return address to encourage return on long distance movements records.

On present observations, I would assess that the patagial tags are less of a hindrance than rings, to raptors which use their legs for capturing food. This also applies to such other methods as "arm" bands, jesses or flanged rings. Together with their excellent visibility, tags have the most potential as a marking technique. The area of the tag allows numbers and letters for

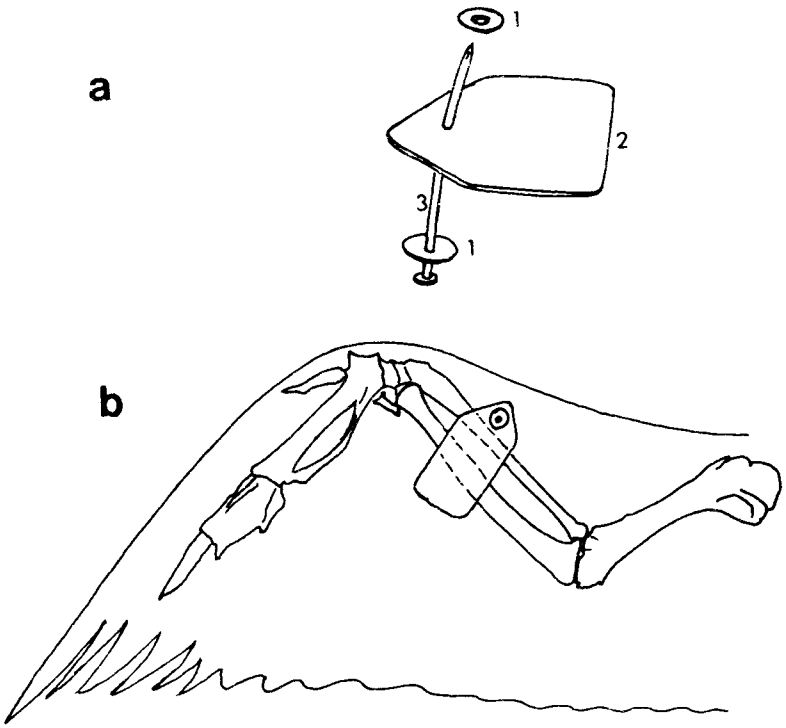

Fig. 2

a) Exploded diagram of the construction of a patagial tag as used on Black-Shouldered Kites. 1:- 10 mm diameter washers of 1 mm thick nylon with a 1,5 mm hole. 2:- Darvic tag with specific colour and engraving, 30 mm long by 22 mm wide. 3:- 1,5 mm nylon rod, heated to a button on the bottom end, cut to a point for pushing through the patagium at the other (heated to a button after insertion). The tag is curved, after making the Darvic malleable in boiling water, to fit the contour of the wing.

b) Diagram to show where the tag must be attached, one third of the way down the radius from the wrist, with the nylon rod passing well in front of the radius but behind the large tendon along the leading edge of the wing.

an extensive series of individual combinations, especially when combined with different colours, sides of the bird, and tag shapes. Luminous tags are proposed for use with owls, and engraving of a number and address (even on the reverse side of the tag) would allow metal rings to be ommitted.

The potential results from colour-marking birds are so exciting that it is worth examining the techniques in detail. For general migration studies, the birds can be recognised without having to be controlled, different years catches can be recognised and local movements easily monitored. For detailed local studies, the birds can become known as individuals, who they mate with, who they fight with and what are their individual traits. The durability of modern plastics suggests that they can replace metal as a marking material, and the abundance of colours and marks then available should be proportional to the number of new and detailed studies which become possible.

REFERENCES

Kemp, A.C. & Kemp, M.I. 1975. Observations on the Whitebacked Vulture Gyps africanus in the Kruger National Park, with notes on other scavengers. Koedoe 18: 51-68.

Ledger, J. 1974. Colour rings for vultures. Safring News 3 (2): 23-28.

Picozzi, N. 1971. The Ring 68-69: 169-170.

Snelling, J.C. 1971. Some information obtained from marking larger raptors in the Kruger National Park, Republic of South Africa. Ostrich Suppl. 8: 415-427.