# COLOUR BAND LOSS IN CAPE GANNETS

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## BACKGROUND

Colour banding is a well recognised and valuable technique for identifying individuals or populations of birds, and is applicable particularly to colonial seabirds such as the Cape Gannet *Morus capensis*. Between 1979 and 1981 some 7 000 chicks and 120 adult gannets were colour-banded with Darvic coil bands by the Sea Fisheries Research Institute and the Port Elizabeth Museum (Newton 1985). However, these initial experiments proved unsuccessful owing to the almost total loss of bands, and further attempts were abandoned.

Several fledglings banded and retrapped on Bird Island, Algoa Bay, as subadults had colour bands firmly wound around the foot, usually damaging the webs and often crippling the foot permanently. These observations suggest that colour bands were lost when forced down the leg and over the foot, possibly as a result of water resistance during plunge diving.

In this note we evaluate an experiment to reduce colour band loss using an adhesive to close the band.

## METHODS

In September 1982, 88 breeding adults were each banded with a stainless steel band, and two Darvic colour bands supplied by Sea Fisheries Research Institute (Kriel and O'Niel, 1982), in a study colony on Bird Island, Algoa Bay. Colour bands were placed either as a pair on the leg without the stainless steel band, or one on each leg with one placed above the metal band. Each colour band was glued closed using one or two drops of cyano-acrylate adhesive, drawn into the coil of each band by capillary action. Care was needed in this process to avoid glueing one's fingers to both band and gannet when the latter wriggled. A record was made of the mass, culmen length and wing length of each bird.

Combinations of colours were used (totals in brackets): black (34); blue (32); red (37); yellow (27); green (38) and white (8).

The nest sites in the study colony were observed for 30 minutes every two hours from 06h00-18h00 during two 5-day periods each month of the breeding seasons 1982/1983 through 1984/1985 and

subsequently at frequent intervals over five days every six weeks to August 1986. Regular retrapping of banded birds elsewhere in the colony provided additional data on presence or absence of colour bands.

## RESULTS AND DISCUSSION

The numbers of colour bands known to have been lost between September 1982 and March 1985 by surviving birds are presented in Table 1 (opposite). A total of 31 bands of all colours was lost over the four-year period, or 17 % of the total originally banded. Assuming a similar proportion of loss by birds not observed, the total loss was probably about 48 bands or 26 %.

The immediate cause of band loss is presumed to be a breakdown in the adhesive bond, possibly through the corrosive effects of seawater and guano. There was no evidence that band loss was greater in heavier birds or those with a larger culmen, implying that greater physical strength was not a factor in band removal. The proportions of different colours lost is intriguing. More than 50 % of the original number of black bands were lost. Of the remainder, 25 % of the white bands and 11 % or less of other colours were lost. The reason for the increased loss of black bands is unknown. Possibly the pigment of plasticizer in the Darvic may affect the adhesive property of the glue, or perhaps black bands heat more in the sun, leading to loss of adhesion.

The overall results indicate that glued colour bands have considerable potential in studies on Cape Gannets and possibly other diving seabirds. If colours such as black and white are omitted, loss rates are comparatively small, probably in the order of 3 % per year.

REFERENCES:-

Newton, I.P. and Cooper, J. 1985. Colour bands used on seabirds in southern African, 1971-1984. Cormorant 13: 55-60.

Kriel, F and O'Niel, E. 1982. Production of colour PVC rings for the Cape Gannet and the Cape Cormorant. Safring News 11: 3-4.

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TABLE 1

NUMBERS AND COLOURS OF BANDS LOST FROM CAPE GANNETS, SEPTEMBER 1982-MARCH 1985

| Time since banding (months) | Number of bands present* | Number of bands lost | Number of each colour lost | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Black | Blue | Red | Yellow | Green | White |
| 0-6 | 182** | 5 | 3 | 1 | | | 1 | |
| 12-18 | 158 | 14 | 9 | 1 | 1 | 2 | 1 | |
| 24-30 | 130 | 5 | 3 | | 1 | | | 1 |
| 30-48 | 118 | 7 | 3 | | 1 | 1 | 1 | 1 |
| TOTAL | | 31 | 18 | 2 | 3 | 3 | 3 | 2 |
| NUMBER OF EACH COLOUR LOST (%) *** | | | 52,9 | 6,3 | 11,1 | 7,4 | 7,9 | 25,0 |

* Based on number of observed survivors x 2

** Includes replacement rings on six birds

*** % of original number of each colour

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Enquiries and orders should be addressed to Mrs Rosalind Lindeque, Secretary, Vulture Study Group, P.O. Box 4190, Johannesburg, 2000

Nestling Lappetfaced Vulture marked with new pvc rings supplied by V.S.G. The birds feet are wrapped in sacking to prevent injuries to researchers! (see Vulture News 16: 10-20. September 1986) (Chris Brown)