# OBSERVATIONS OF COLOUR-RINGED CAPE SUGARBIRDS AT KIRSTENBOSCH

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## INTRODUCTION

The Cape Sugarbird *Promerops cafer* is an obligate nectar-feeder endemic to the Fynbos Biome (Maclean 1985). The species is known to travel up to 50 km (Fraser and McMahon in press), probably in response to the availability of food resources, notably flowering proteaceous species (Skead 1967, Rebelo 1987 and references therein). The ecological requirements of this species are of conservation interest in view of its putative role as a pollinator of indigenous plants. Habitat destruction has the potential to disrupt this plant-bird relationship (Rebelo *op cit.*). Indeed, the disappearance of the Cape Sugarbird from areas around Cape Town on account of habitat destruction was commented on as long ago as 1952 (Anon 1952). The relative ease of capture of the birds and their habit of perching conspicuously makes the Cape Sugarbird a suitable subject for colour-ringing studies. These facilitate an assessment of the birds' site-fidelity, seasonal attendance and movements.

## MATERIALS AND METHODS

Cape Sugarbirds were mistnetted, metal-ringed and uniquely colour-ringed at Kirstenbosch Botanic Gardens, Claremont, Cape (33°59S, 18°26E) between March and November 1985. Between October 1985 and May 1988 sugarbirds at Kirstenbosch were checked for colour-rings. The date, colour-ring combination and sex of each bird was recorded. The location within the Gardens of individual birds was plotted from October 1986 onwards.

## RESULTS AND DISCUSSION

65 Cape Sugarbirds were individually colour-ringed at Kirstenbosch in March-May and November 1985. Study birds were retrapped in August 1986 and July 1987. 27 visits were made to Kirstenbosch between October 1985 and May 1988 to look for colour-ringed birds. The monthly presence at Kirstenbosch of individually colour-ringed Cape Sugarbirds is detailed in Table 1 (overleaf). On four visits (in March, April and June 1986) no colour-ringed individuals were noted amongst those sugarbirds seen.

24 (45%) of the 53 colour-ringed adults were recorded at least once after ringing. Three birds (2%) were recorded in the month of ringing but not seen again. Three of the 12 subadults colour-ringed (8 juveniles and 4 pulli) were recorded at least once subsequent to ringing. The most frequently-observed colour-ringed sugarbird was a territorial male (Male F; Table 1), which was observed on 13 out of 27 visits (48%). This individual was noted within 50 m of the same locality within the Gardens on each visit. Three birds were recorded on > 35% of

TABLE 1

MONTHLY ATTENDANCE OF UNIQUELY COLOUR-RINGED CAPE SUGARBIRDS
RINGED AND SUBSEQUENTLY RECORDED AT KIRSTENBOSCH

| | 1985 | | | | | 1986 | | | | | | | 1987 | | | | | | | | | 1988 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MONTH | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 4 | 5 | 10 | 11 | 2 | 3 | 4 | 7 | 8 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 4 | 5 |
| **ADULT MALES** | | | | | | | | | | | | | | | | | | | | | | | |
| A | X | | | | | | | | | | | | | X | | | | | | | | | |
| B | X | | | | | | | | | X | | | | | | | | | | | | | |
| C | X | | X | | X | X | X | | X | | X | X | | | | | | | | | | | |
| D | X | | | | | | | | | | | | X | | | | | | | | | | |
| E | X | | | | X | | X | | X | X | X | | X | X | X | X | X | | | | | X | |
| F | | X | | | | | | | | | | | | X | | | | | | X | | | |
| G | | X | | | | | | | | | | | | | | | | | | | | | |
| H | | | X | | | | | | | | X | | X | | | | | | | | | | |
| I | | | X | | | | | | | | X | X | | | | | X | | X | | | X | X |
| J | | | X | X | X | | | | | | | | | | | | | | | | | | |
| K | | | X | | | | | | | X | | | | | | | X | X | X | | | | |
| L | | | | | X | | | | X | | | | | | | | | | | | | | |
| M | | | | | X | | | | X | X | X | | | | | | | X | | | | | |
| N | | | | | X | | | | | | | | | | | | | | | | | | |
| **ADULT FEMALES** | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 4 | 5 | 10 | 11 | 2 | 3 | 4 | 7 | 8 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 4 | 5 |
| A | X | | | | X | | | | | | | | | X | | | | | | | | | |
| B | X | | | | | | X | | | | | | | X | | | | | | | | | |
| C | X | | | X | X | | | | | X | X | | | X | | | | | | | X | | |
| D | X | | | | X | | | | | | | | | | | | | | | | | | |
| E | X | | | | X | X | | | | | | | | | | | | | | | | | |
| F | | X | | X | | | | | | | | | | | | | | | | | | | |
| G | | | X | X | X | | | X | X | | X | | | | | | | | | | | | |
| H | | | X | | | | | X | | | X | X | | | | | X | | X | | | | X |
| I | | | | | X | | | | | | | | | | | | | | | | | | |
| **SUB ADULTS** | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 | 4 | 5 | 10 | 11 | 2 | 3 | 4 | 7 | 8 | 10 | 11 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 4 | 5 |
| A | | | X | | X | | | | | | | | | | | | | | | | | | |
| B | | | | | X | | | | | | X | | | | | | | | | | | | |
| C | | | | | X | | | | | | X | | | | | | | | | | | | |

visits and were considered to be resident. All tended to remain within discrete areas (e.g. individual *Protea* beds), as demonstrated also by the pair which was present at the same site on all six visits on which their exact location was recorded.

Broekhuysen (1959) noted that Cape Sugarbirds were absent from their breeding territories at Kirstenbosch for "part of the year", returning in March/April. Results here indicate that certain territorial males may be present throughout the year, although this cannot be confirmed because observations were not made in December or January. Only one Kirstenbosch-ringed bird has been reported away from the ringing site: 5 km northwest at Camp's Bay ($33^{o}57S$, $18^{o}23E$) (Fraser and McMahon, in press).

Most (67%) were recorded two or three times, but up to 20 months after ringing (Table 2). Four birds (all males) were absent for 24-29 months between observations.

TABLE 2

INTERVAL (MONTHS) BETWEEN RECORDS OF UNIQUELY COLOUR-RINGED CAPE SUGARBIRDS AT KIRSTENBOSCH

| MONTHS BETWEEN SIGHTINGS | FREQUENCY | | | TOTAL |
|---|---|---|---|---|
| | MALES | FEMALES | SUBADULTS | |
| 0 | 14 | 5 | 0 | 19 |
| 1 | 8 | 4 | 1 | 13 |
| 2 | 4 | 2 | 0 | 6 |
| 3 | 2 | 6 | 0 | 8 |
| 4 | 2 | 1 | 0 | 3 |
| 5 | 2 | 3 | 0 | 5 |
| 6 | 0 | 2 | 0 | 2 |
| 7 | 2 | 0 | 2 | 4 |
| 8 | 1 | 1 | 0 | 2 |
| 9 | 3 | 0 | 0 | 3 |
| 14 | 2 | 0 | 0 | 2 |
| 15 | 1 | 0 | 0 | 1 |
| 20 | 1 | 0 | 0 | 1 |

## Birds ringed outside Kirstenbosch

Six colour-ringed sugarbirds seen at Kirstenbosch had been ringed away from the Gardens. These included five (9,3%) of 54 sugarbirds ringed in June 1985 at Teeberg (34°14S, 18°24E) in the Cape of Good Hope Nature Reserve, 27 km south (Figure 1). One of these birds was sighted at Kirstenbosch in November 1985. Following a fire in February 1985 which burnt the vegetation of the northern third of the Cape of Good Hope Nature Reserve, a further four Teeberg-ringed birds were recorded at Kirstenbosch (Table 3 opposite). At this time of year, however, their food plants at Teeberg (*Protea lepidocarpodendron* and *P. repens*) are not flowering; thus fire was not necessarily the only cause of emigration. One bird present at Kirstenbosch between June and October 1987 had been ringed at Helderberg Nature Reserve, Somerset West (34°03S, 18°52E), sometime between September 1986 and June 1987 and had thus travelled 44 km (Figure 1). Cape Sugarbirds at Helderberg are given a site-specific colour ring but not unique combinations.

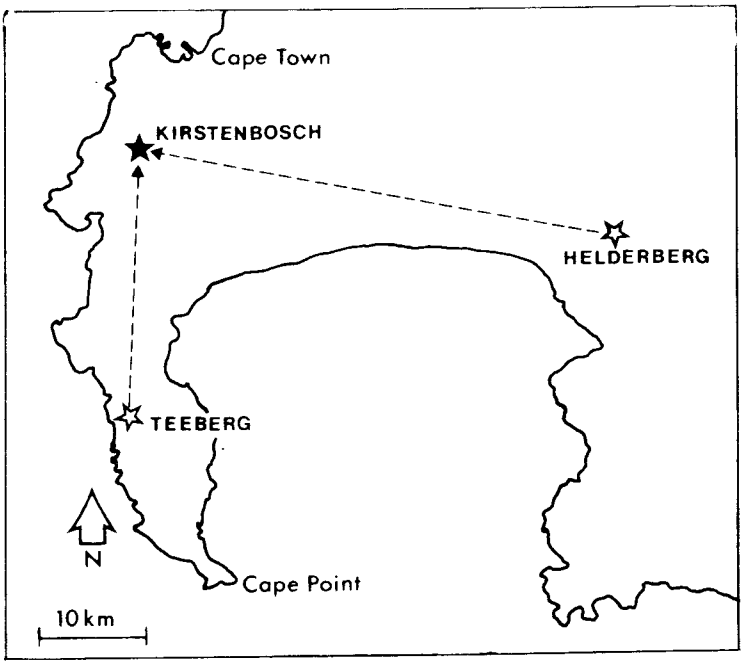


FIGURE 1

LOCATION OF STUDY SITE AND ORIGINS OF CAPE SUGARBIRD RINGED ELSEWHERE

TABLE 3

DETAILS OF CAPE SUGARBIRDS RINGED AT TEEBERG (CAPE OF GOOD HOPE NATURE RESERVE) AND SUBSEQUENTLY RECORDED AT KIRSTENBOCH

| RINGING DATE | DATE(S) OF SIGHTINGS AT KIRSTENBOSCH | TIME ELAPSED SINCE RINGING (MONTHS) |
|---|---|---|
| 27.06.85 | 01.11.85 | 4 |
| | 05.04.86 | 9 |
| 17.06.85 | 26.07.86 | 13 |
| 12.06.85 | 02.08.86 | 14 |
| | 27.09.87 | 28 |
| 12.06.85 | 31.10.86 | 17 |
| 14.06.85 | 20.09.86 | 15 |

Ageing and sexing

Cape Sugarbirds in the field were sexed according to tail length, the males having a significantly longer tail than females (Skead 1967; Maclean 1985; Seiler and Fraser 1985). During moult, however, the males' tails may be similar in length to those of the females. In October and November birds with short tails were sexed as females in the field, but over half of these were observed at other times with the distinctive long tail of the male. Such birds had, therefore, been sexed incorrectly; this indicates that tail length is not an infallible sexing technique (*contra* Seiler and Fraser 1985). However, long-tailed males may be seen at any time as moult is recorded in at least eight months of the year (Fraser, pers obs). One juvenile male bird (unsexed when ringed) at Kirstenbosch did not attain its full tail length for eight mnonths. Two unsexed juveniles still sported short tails five and 11 months after ringing; the latter was thus probably a female.

## CONCLUSIONS

These observations suggest that Cape Sugarbirds at Kirstenbosch may be divided into small resident and larger 'floating' components. The former comprises adults which occupy the same territory in successive years, whereas the latter may include juvenile and adult birds.

As the Kirstenbosch Gardens are artificially maintained the results here are not necessarily representative of natural conditons. Nevertheless, we have demonstrated that observations of individually recognisable sugarbirds do permit an assessment of site attendance. Of particular interest are the records at Kirstenbosch of birds ringed elsewhere. On this basis the colour-ringing of sugarbirds is a valuable exercise. Sightings of colour-ringed birds away from their ringing sites are now required to investigate seasonal movements and the distances which the birds travel to exploit various food plants.

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