# WHAT CAN BE LEARNT FROM THE SAFRING DATABANK- THE CASE OF THE ACACIA PIED BARBET

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## INTRODUCTION

As part of an ongoing study of the Acacia Pied Barbet *Lybius leucomelas* as an indicator of habitat changes brought about by the spread of alien woody plants (Macdonald, 1983 & in prep.) I had recourse to the records of this species lodged in the SAFRING databank. I had previously incorporated the SAFRING distributional data for several other species in analysing large-scale distribution changes in response to rainfall fluctuations (Macdonald, 1982 & in prep.). As few people have to date made use of the SAFRING databank for purposes such as these, I thought it might be opportune to put down on paper some of the results I obtained by flicking through the original ringing and recovery records for Pied Barbet.

## How easy is it to obtain the original ringing data from the SAFRING records?

The search of all the ringing records from approximately 1969 onwards (since when ringing returns have been submitted on computer-compatible forms) is facilitated through the availability (on request) of a computer printout which lists all schedule summaries containing a particular species. One then has to locate the ring series in the schedule files and search the schedule for the appropriate species number in order to extract the original date and locality information. For records prior to 1969 the extraction has to be done manually by flicking through all the original S.A.O.S. ringing data cards (of the theoretically possible ring sizes) stored in the SAFRING filing cabinets.

In the current exercise a total of 645 Pied Barbet records were obtained in this way. According to one SAFRING computer program the overall total that was recorded as having been ringed to the end of 1974 was 643 (a figure which is highly suspect as the databank is largely unchecked and several errors were located during the present exercise). If my totals for the period 1975 to 1983 are added to this 'pre-1975 total' the grand total ringed in southern Africa would be 765 birds. However, a more recent computerised summary of all the birds ringed from 1969 to the end of 1978 gives this total as 496 birds. If my totals from 1957 to 1968 and from 1979 to 1983 are added to this subtotal, the grand total ringed to 1983 is 661. It is apparent that neither of these estimates is accurate but it is almost certain that I missed some of the records in the databank (some

were intentionally omitted where original ringing data were inadequate for my purposes, i.e. date or locality was missing). One of the benefits accruing to SAFRING through the use of their records for purposes such as mine is that errors and omissions in the databank are picked up and the databank is subsequently improved.

Over what time period were the data recorded?

In Figure 1 (opposite) the progressive total number of Pied Barbets ringed each year in southern Africa is plotted. According to the 645 records which I was able to locate in the databank, 80% of all the birds were ringed in the decade 1966 to 1975. The earliest recorded ringing of a Pied Barbet was in 1957. The rapid tail-off in numbers ringed per annum since 1975 correlates with the period in which 'random ringing' by amateurs in the region was markedly curtailed through the introduction of a vetting procedure for ringing projects (Elliott, 1974a; Vernon, 1975).

What geographical area does the SAFRING databank cover for Acacia Pied Barbets?

In Figure 2 on page 28 the distribution records for Pied Barbets that were obtained from all available sources are plotted according to loci (quarter by quarter degree areas). The records are differentiated as to their source, with those from the SAFRING databank being separated from all other sources. Visual inspection of Figure 2 shows that the SAFRING records provide a fair representation of the southern African distribution of Pied Barbets except for major gaps in the northern, central and eastern Cape, and western and southern Botswana. Although coverage by SAFRING is inadequate to provide a definitive map of the range of Pied Barbets, records are sufficiently widely distributed and numerous enough to provide useful date-by-locality information. The distributional data they provide are a useful adjunct to that of other 'high quality' sources (e.g. literature and museum specimens). It is quite apparent that the distribution is only really adequately described where intensive collations of sight records have been made, e.g. the completed or ongoing Atlas projects for Natal (Cyrus & Robson, 1980), Transvaal (Kemp & Tarboton, in prep.), O.F.S. (Earlé, in prep.), and Western Cape (Cape Bird Club, in prep.). In the case of the eastern Cape the exceptionally complete coverage is due to the incorporation of sight records from the distributional surveys of C.J. Skead and C.J. Vernon (unpubl. data).

The number of Pied Barbet loci records in portions of the region obtained from the various data sources are given in Table 1 on page 30. This provides some indication of where distributional coverage of small savanna birds in the SAFRING databank is likely to be good and where it is poor or lacking.

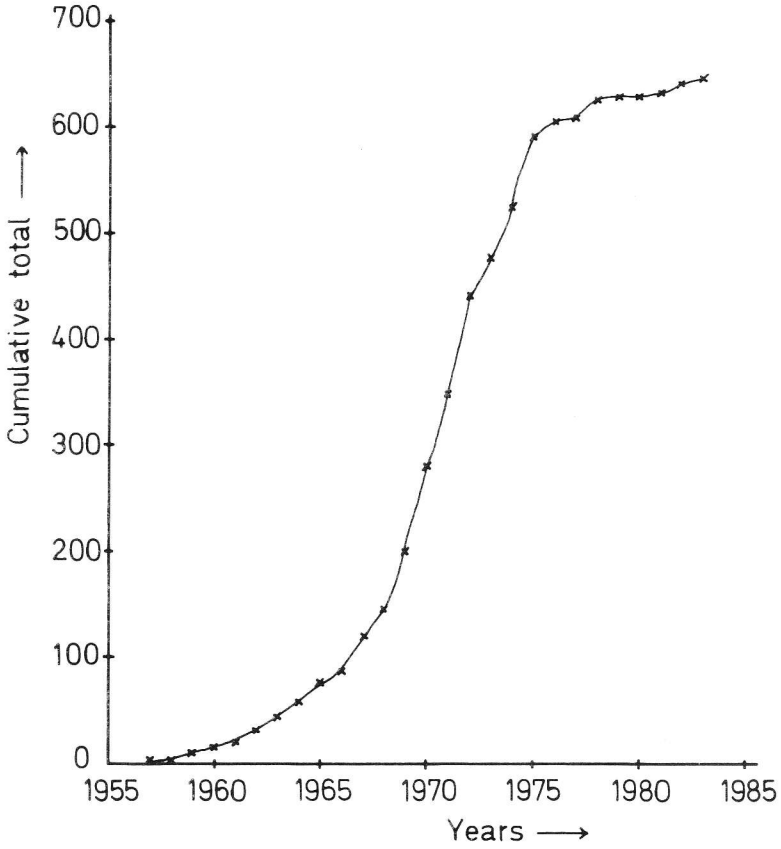
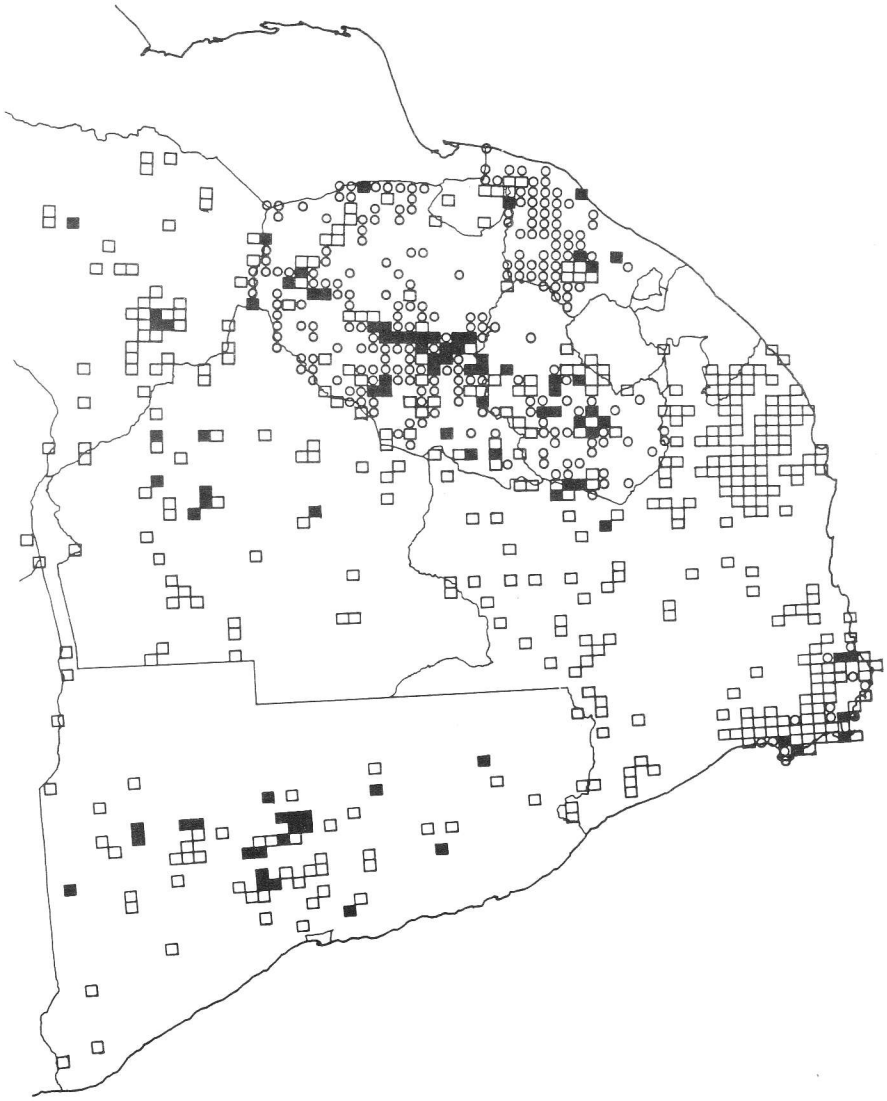



FIGURE 1

CUMULATIVE TOTAL OF ACACIA PIED BARBETS RINGED IN SOUTHERN AFRICA 1950-1983



EXTRACTION OF CONVENTIONAL RINGING STATISTICS FROM THE DATA BANK

What ring size to use?

While extracting the date and locality information on Pied Barbets in the SAFRING databank the opportunity was taken to find out what size rings had been used to mark this species. The results were collected for a subsample of 511 birds ringed and these are presented in Table 2 on page 31.

If one accepts that the majority decision is the correct one - and that tarsus diameter in Pied Barbets is not subject to wide variation between individuals - then it appears that approximately 10% of all the birds ringed have been ringed incorrectly. The importance of the production of standardized instructions to ringers in this respect is emphasized. It is noteworthy that the "Bird Ringers' Manual" advocates the use of a 3,0 mm ring for Pied Barbets.

What kind of ring to use?

It is possibly of note that at one of the few ringing stations where Pied Barbets had been ringed over a long period (Tonquani, Bryanston; the ringing station of the late Royce Reed) one of the birds ringed, some five years after ringing of this species first started there, was missing its right tarsus. It was then re-ringed with an aluminium 3,0 mm ring on its left tarsus. One wonders how many birds ringed with 'soft' rings have lost their legs after squeezing rings too tightly on to their tarsi with their powerful beaks. Certainly Reed, on recapturing a bird ringed one month previously with a 652 series aluminium ring, had to exchange it for a new ring due to 'excessive abrasion'.

The experience of the Barberspan Ornithological Research Station in this respect would also be interesting but the details of their original ringing are not available in the SAFRING databank. The recommendation in the "Bird Ringers' Manual" that only stainless steel rings be used for this species seems well justified.

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◁ FIGURE 2: THE DISTRIBUTION OF LOCI RECORDS FOR ACACIA PIED BARBETS IN SOUTHERN AFRICA SOUTH OF 17°S

KEY: ■ = Loci for which records exist in the SAFRING databank.

□ = Loci not recorded in SAFRING databank for which 'high quality' records exist, e.g. museum specimens, literature records, surveys by acknowledged authorities.

○ = Loci not recorded from either of the above sources but present in recent 'Atlas' projects.

TABLE 1

THE NUMBER OF LOCI RECORDED FOR ACACIA PIED BARBETS FROM DIFFERENT SOURCES AND THE RELATIVE COVERAGE OF THE SAFRING DATABANK

| AREA | HIGH QUALITY SOURCES | | RECENT ATLAS PROJECTS | TOTAL | SAFRING AS % OF ALL HIGH QUAL. RECORDS |
|---|---|---|---|---|---|
| | SAFRING | OTHER SOURCES EXCL. ATLASES | | | |
| Zambia | 0 | 2 | | 2 | 0 |
| S.W.A. | 21 | 51 | | 72 | 29 |
| Botswana | 8 | 41 | | 49 | 16 |
| Zimbabwe | 4 | 36 | | 40 | 10 |
| Transvaal | 32 | 35 | 126 | 193 | 48 |
| Swaziland | 0 | 0 | | 0 | 0 |
| Natal | 4 | 6 | 60 | 70 | 40 |
| O.F.S. | 12 | 17 | 38 | 67 | 41 |
| Lesotho | 0 | 2 | | 2 | 0 |
| N. Cape | 2 | 36 | | 38 | 5 |
| Central Cape | 0 | 20 | | 20 | 0 |
| S.W. Cape | 6 | 51* | 12 | 69 | 11 |
| E. Cape | 0 | 90** | | 90 | 0 |

* includes the Cape Bird Club's Field Card system

** includes C.J. Skead's & C.J. Vernon's survey records.

TABLE 2

THE NUMBER AND PERCENTAGE OF ACACIA PIED BARBET INDIVIDUALS RINGED BY INTERNAL DIAMETER SIZE OF THE RING APPLIED

| | Internal ring diameter (mm) | | | | |
|---|---|---|---|---|---|
| | 2,0 | 2,3 | 3,0 | 4,0 | 4,3-5,0 |
| Number ringed | 6 | 3 | 461 | 14 | 27 |
| % of total ringed (n=511) | 1,2 | 0,6 | 90,2 | 2,7 | 5,3 |

The longevity and movements of this species.

Of the total of 645+ Pied Barbets that had definitely been ringed to the end of the 1983 ringing year, only 11 have been recovered to date. This recovery rate of 1,71% is higher than the mean for all southern African-ringed birds of approximately 1,49% (Frost, 1981). In Table 3 (overleaf) this recovery percentage is compared with that of the more commonly ringed and recovered species of terrestrial ecosystems in southern Africa. The only species with a higher recovery rate is the Cape Vulture *Gyps coprotheres*. The recovery rate for Pied Barbets can thus be considered unusually high. The species is relatively conspicuous, medium-sized and is apparently not subject to migrations away from the place of ringing. Of the 11 recoveries eight were made within 1 km of the ringing site, one was approximately 1 km distant and two were 3 km from the ringing locality. As most of the ringing and recoveries of Pied Barbets have occurred in the vicinity of major towns in southern Africa, the probability of a dead bird being found by a literate individual is probably higher than for most species ringed in southern Africa which move into sparsely populated rural areas.

The mean time elapsed between ringing and recovery was 17,2 months with a range of one to 34 months. Almost all birds were ringed as free-flying birds. The only bird ringed as a nestling and which was subsequently recovered was found dead one month after ringing.

TABLE 3

THE TOTAL NUMBER AND RECOVERY PERCENTAGES OF RINGED ACACIA PIED BARBETS AND OTHER BIRDS OF TERRESTRIAL ECOSYSTEMS IN SOUTHERN AFRICA (OTHER SPECIES FROM ELLIOTT, 1974b)

| Species | Total Ringed | Percentage Recoveries |
|---|---|---|
| Cattle Egret *Bubulcus ibis* | 43 311 | 0,84 |
| Cape Vulture *Gyps coprotheres* | 2 699 | 3,08 |
| Cape Turtle Dove *Streptopelia capicola* | 7 411 | 1,27 |
| Laughing Dove *Streptopelia senegalensis* | 24 874 | 1,16 |
| Acacia Pied Barbet *Lybius leucomelas* | 645 | 1,71 |
| South African Cliff Swallow *Hirundo spilodera* | 18 129 | 0,21 |
| Cape White-eye *Zosterops pallidus* | 5 839 | 0,36 |
| House Sparrow *Passer domesticus* | 7 386 | 0,91 |
| Cape Sparrow *Passer melanurus* | 23 323 | 0,49 |
| Cape Weaver *Ploceus capensis* | 7 067 | 1,42 |
| Masked Weaver *Ploceus velatus* | 24 351 | 0,68 |
| Redbilled Quelea *Quelea quelea* | 73 470 | 0,23 |
| Red Bishop *Euplectes orix* | 18 275 | 0,36 |
| Bronze Mannikin *Spermestes cucullatus* | 6 016 | 0,43 |

The recapture data for the species were not analysed but, judging from incidental observations made while the original ringing data were being extracted, the recapture data are extensive.

## EXTRACTION OF UNUSUAL INFORMATION FROM THE SAFRING DATA BANK

In the current exercise one of the objectives of the data search was to try and establish if the Pied Barbet had recently expanded its distribution. The lapse in years between commencement of regular ringing at certain localities and the first recorded capture date for Pied Barbets provide some of the strongest data in support of range expansion: a phenomenon which is otherwise difficult to quantify. Such records are available for Barberspan Ornithological Research Station, Tonquani, Rondevlei Bird Sanctuary, Sir Lowry's Pass Village and from the Pietermaritzburg area (particularly in Bisley Valley where the author assisted C.J. Vernon in a detailed survey over the years 1967-1968 when the Pied Barbet was definitely (?) absent and where it was first ringed by R.A. Earlé in 1978).

## ACKNOWLEDGEMENTS

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