MALACHITE SUNBIRD RINGING IN THE FREE STATE

D H de Swardt

Department of Ornithology, National Museum, P O Box 266, Bloemfontein 9300

Introduction

Previous ongoing studies on Malachite Sunbirds *Nectarinia famosa* and other nectarivores have been based in the Eastern and Western Cape Provinces, and also in Zimbabwe (Craig & Simon 1991; Fraser *et al.* 1989; Tree 1991). In the Eastern Transvaal, I have concentrated mainly on Gurney's Sugarbirds *Promerops gurneyi*, but have also caught about 220 Malachite Sunbirds there (De Swardt 1989; unpubl. data).

My interest in Malachite Sunbirds in the Free State was first prompted by the recapture of a bird (originally ringed by Dr Roy Earlé in Bloemfontein) at Kirklington, Ficksburg, during 1990 (Moffet 1990), and secondly by their association during the winter months with Bloemfontein and by their subsequent absence during the summer. The above recapture was the first evidence of any seasonal movements between Bloemfontein and the eastern Free State, and a Malachite Sunbird ringing programme was therefore initiated during 1990 (De Swardt 1993a). This is the first time that an investigation on sunbird movements has been undertaken in this region. This article reports on results obtained during the past five years of ringing Malachite Sunbirds at various localities in the Free State.

Study sites

Malachite Sunbirds have been captured at several sites in the Free State. Capture sessions were concentrated in the Bloemfontein area, at farms near Excelsior and Ficksburg and also in the eastern Free State (Figure 1). Several prospective sites have been investigated dur-

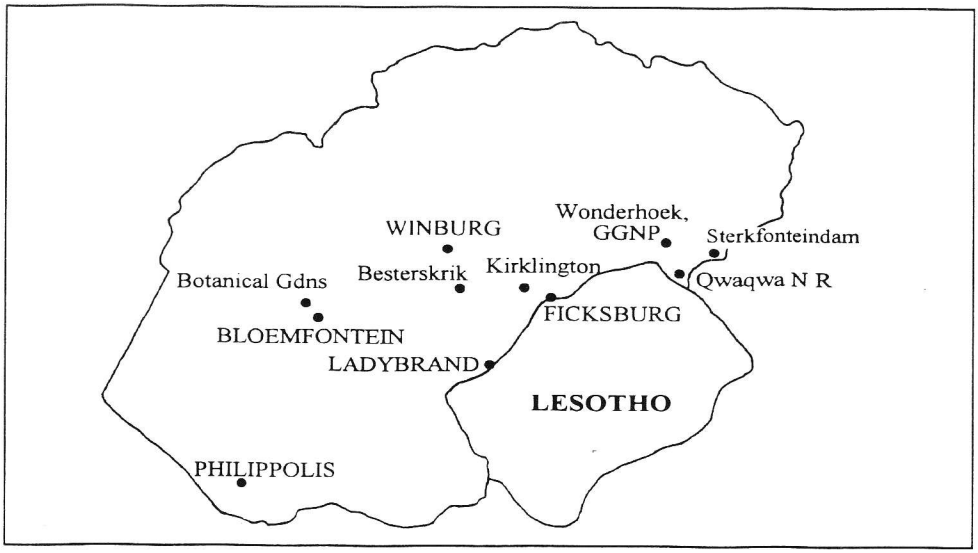

Figure 1. Malachite Sunbird ringing sites in the Free State

ing the past two years and ringing at some of these will commence from 1995. These sites include stands of *Aloe ferox* in the Zastron and Aliwal North districts and hillsides with *A. broomii* near Philippolis. Preliminary results indicate that these birds are lighter in body mass than the other Free State populations (unpubl. data). The main sunbird food plants (and their flowering seasons) will be discussed briefly.

In Bloemfontein (mainly at the Botanical Gardens), sunbirds were captured in clumps of *Leonotis leonurus* between April and May when these were in flower. Later, from June until August, the hillside areas of the Gardens are covered with *A. granidentata* blooms. Private gardens with *A. arborescens* and *Kniphofia* spp. in the suburbs of Bloemfontein also attract sunbirds during this period.

The farm Kirklington, near Ficksburg, was visited twice a year. Ringing was carried out mainly during June-July when clumps of *A. arborescens* are in flower in the gardens and later during September-October on the koppies and hillsides when *A. saponaria* is in bloom.

The Besterskrik site, near the Korannaberg range (Excelsior district), is probably the best example of an isolated "island" of nectar resource for Malachite Sunbirds. The northwestern aspect of the hill is covered by a stand of *A. spectabilis*, the only known population of this aloe in the Free State (De Swardt 1993b). These aloes have a short flowering period from mid July to early September and during peak flowering in early August Malachite Sunbirds are abundant at the site (see discussion).

The other sites are in the eastern Free State at Wonderhoek, Golden Gate National Park (GGNP), Qwaqwa National Park (adjacent to GGNP) and Sterkfonteindam Nature Reserve near Harrismith. In these areas sunbirds are captured in *Protea roupelliae* and mixed *P. roupelliae*/*P. caffra* woodland during the November-March flowering period (see Table 1).

Ringing sites were visited in successive years to obtain recapture, moult and biometric data. The birds were also colour-ringed for individual recognition and visual search for free flying colour-ringed birds was made at each site.

Table 1. Numbers of Malachite Sunbirds ringed in the Free State and main flowering species of each site.

Ringing sites	Flowering species	Malachite Sunbird
Botanical Gardens, Bloemfontein	*Leonotis leonurus*	88
Oliewenhuis, Bloemfontein	*Leonotis leonurus*	4
Besterskrik, Excelsior	*Aloe spectabilis*	23
Kirklington, Ficksburg (2 sites)	*A. arborescens*	37
	A. saponaria	
	Watsonia spp.	
Platbergdrift, Ladybrand	*A. saponaria*	3
Winburg	*A. arborescens*	1
Wonderhoek, Golden Gate N P	*Protea roupelliae*	3
	P. caffra	
Qwaqwa National Park, Kestell (3 sites)	*P. roupelliae*	144
Sterkfonteindam Nature Reserve, Harrismith (2 sites)	*P. roupelliae*	25
Totals		328

Results

Between May 1990 and February 1995, 328 Malachite Sunbirds were ringed in the Free State (Table 1). Of these, 92 (28%) were captured in Bloemfontein during the winter months. Most of the remainder were captured throughout the year in the central and eastern Free State. Captured birds comprised 201 males (61%), 83 females (25%) and 44 unsexed individuals.

The Free State recaptures are summarised in Table 2. In addition to a single control, retraps of 20 different birds were obtained mainly at the Bloemfontein Botanical Gardens, Kirklington and recently at Qwaqwa National Park. Since Malachite Sunbirds are seasonally absent from Bloemfontein, the recaptures at the Botanical Gardens suggest some fidelity to wintering site by these itinerant birds.

In only two Malachite Sunbirds was any significant movement recorded. A male (AB 85878) ringed on 6 August 1991 at Besterskrik was resighted at Kirklington, Ficksburg on 27 February 1993 (see Figure 1). This observation involved an eastward movement of 54 km. Another individual (F20581) ringed at the Botanical Gardens on 7 May 1991 was found dead 27 months later in a garden in the Heuwelsig suburb of Bloemfontein on 19 August 1993, 4 km distant from the ringing site.

Discussion

The observation of Moffet (1990) is at present the only seasonal movement record between Bloemfontein and Ficksburg. This movement of 157,5 km nearly equals the record obtained for Malachite Sunbirds in the southwestern Cape (Fraser *et al.* 1989). Despite my ringing effort (92 at Bloemfontein and 37 at Kirklington), no further movements between these two sites have been recorded. It would seem that Malachite Sunbirds only leave a site when its nectar resources are becoming depleted and at such times movement probably occurs to localities where nectar is still available. The individual ringed at Besterskrik during August 1991 which was resighted at Kirklington 19 months later, exemplifies the itinerant nature of these birds. During an early visit to the Besterskrik site on 20 July 1992, the aloe flowers were not yet open and an absence of sunbirds was noted. However, three weeks later when the plants were in full flower, sunbirds were observed to be abundant. After the flowering peak from late August to September, sunbirds had already started to disperse and I believe that they moved to forage on *Aloe granidentata* and *A. saponaria* inflorescences in the Excelsior-Ficksburg areas during August-October. The sunbirds are therefore opportunistic visitors to these isolated aloe populations and other areas, probably moving daily between different nectar resources. At Kirklington, the sunbirds are mostly resident, but probably switch territories between the gardens around the farmhouse in winter and the nearby mountains in summer. No recaptures were obtained on the hillsides, but only in successive seasons in the farmhouse gardens. Some birds still stay around the gardens until mid September.

Table 2. Recaptures of Malachite Sunbirds.

Ringing sites	Retraps	Elapsed months to recapture
Botanical Gardens, Bloemfontein	7	12, 12, 14, 24, 24, 24, 36
Heuwelsig, Bloemfontein (ringed at Botanical Gardens)	1	27
Kirklington, Ficksburg	7	12, 12, 13, 14, 22, 24, 24
Kirklington, Ficksburg (ringed at Besterskrik)	1	19
Sterkfonteindam Nature Reserve	1	10
Qwaqwa National Park	3	3, 3, 3

Lack of recaptures at a ringing site despite repeated netting sessions suggest that seasonal movements or dispersal are taking place. For example, at Honingkloof, Qwaqwa National Park, 17 Malachite Sunbirds were ringed during December 1992. When the site was again revisited in March 1993, two days of intense ringing yielded a total of 33 new unringed sunbirds but none of the 17 birds ringed in December were seen or recaptured. The *Protea* site was burnt later during September 1993 and at a subsequent visit during November fewer individuals were captured, although several free flying birds were observed. Far fewer inflorescences were available for the sunbirds. A year later, during December 1994, 16 sunbirds were caught in one day but there were no retraps and one wonders where the other 50 or more sunbirds had gone!

However, the Park was visited again during February 1995 in an effort to obtain recaptures. Many more inflorescences were available and a record of 57 Malachite Sunbirds were captured within four days. At Honingkloof, two recaptures were obtained on the first day and a site visited for the first time last year, yielded one recapture (see Table 2).

As these three recaptures were obtained in the same breeding season, it suggests that some males are territorial in their *Protea* clumps during this period. As a result of their itinerant nature, much movement between the *Protea* clumps and mountainous valleys has been observed.

During the winter months the Malachite Sunbirds are absent from the eastern Free State localities and I suspect that they move to surrounding gardens in lower-lying areas in or near the Park, such as Harrismith or Natal. However, the recovery of the Pellissier-ringed bird in Kirklington suggests that at least some of the Malachite Sunbirds which spend summer in the eastern Free State may winter to the west in the Bloemfontein area. Maclean (1994) considers the species to be a seasonal migrant from the Lesotho highlands to the eastern parts of the Free State and the Natal midlands. This suggestion can only be substantiated if Malachite Sunbirds are captured and ringed in Lesotho in summer and subsequently recaptured or recovered in Free State localities.

At Lydenburg in the Eastern Transvaal, I was able to get some recaptures of Malachite Sunbirds at the *Protea* clumps during the summer months, but they were absent during winter at these sites (unpubl. data). Although there is an influx of Gurney's Sugarbirds into Lydenburg town in winter, no similar influx of sunbirds to the town area has been observed (De Swardt 1989). The findings of this study show how little we know about Malachite Sunbird movements. Although results from my project are as yet very few, a pattern is emerging in the Free State. I hope this article prompts other ringers (especially in the Free State, Gauteng, Eastern Transvaal and KwaZulu-Natal) to do some Malachite Sunbird ringing and to boost SAFRING's annual total so that this species can appear in the top 20!

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