ORTSTREUE DEMONSTRATED BY MIGRANTS AT NCHALO, MALAŴI

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Since the Nchalo Ringing Station (Malaŵi, 16°16S, 34°55E) is no more, this seems a good opportunity to compute migrant returns over a 16 year period. Hanmer (1982) showed the percentage of Palaearctic passerines which had returned regularly to Nchalo up to June 1982 and Hanmer (1986) listed recaptures of these same species up to June 1986. This paper brings their returns up to date. Afrotropical migrants also return regularly (earlier evidence of Pygmy Kingfisher *Ispidina picta* returns was given by Hanmer (1979, 1980)) and there is a third class of 'migrants' which, although not normally considered to be such, nevertheless only occurred at Nchalo at certain times of year and some individuals were recaught over several years. Three of these species came regularly to breed, but the others were only present during their off-season. The apparently migratory habits of some of these species were discussed by Hanmer (1977, 1978) and Brooke (1978), but several other species, both altitudinal and local migrants, have since been found to occur at Nchalo and some of these were discussed by Hanmer (1988).

Tables 1-3 (pp 36-38) show the numbers of birds ringed up to June 1988, in order that only birds which had had a chance to return at least once would be included in the calculations for 'percentage return'. 'Final' recaptures are given up to 30 June 1989 and interim recaptures (in brackets) show known earlier returns of birds which are also included under 'final'. No bird has been recaught every year, but it is probable that those first recaught some years after they were ringed were present in earlier years and failed to be caught. Using only 60-78 m of net in an area of 3-4 ha, which is itself set in a far larger zone of suitable habitat in the housing area, leaves a great deal of the habitat unmonitored. 'Percentage returns' were calculatated using both 'final' and interim recaptures combined and from this the fidelity to the trapping area can be compared for different species and groups. Table 4 (page 40) shows the species of different types of migrants which apparently have never returned and the number ringed at the end of June 1988.

Table 1 shows the numbers of Palaearctic migrants (all passerines) which have been recaptured over a number of years. Some birds were caught only during either northward or southward passage and the dates of each individual's captures indicate that the birds follow roughly the same timetable (and route) each year. Other birds were evidently resident in the trapping area, since they were usually caught several times during any summer.

Using the 'percentage return', the Basra Reed Warbler *Acrocephalus griseldis* and European Reed Warblers *A. scirpaceus* show the highest fidelity, as they did in 1982, probably due to Nchalo being close to the limit of their southward migration, but since few of the latter species were ringed, that figure may not be accurate. Some Willow Warblers *Phylloscopus trochilus* and Spotted Flycatchers *Muscicapa striata* also appear to have returned regularly, but few have been ringed and the flycatcher was not even included by Hanmer (1982), since none had been recaptured at that time. The percentage calculated for the Willow Warbler has remained the same. The return rate of the Thrush Nightingale *Luscinia luscinia* is high and would probably have been higher had the species not had several bad years, with few ringed and no retraps, while habitat which had been destroyed was gradually redeveloped. The figure in 1982 was 6,8 %; it is only over the last three years that the recapture rate has increased considerably. It is unfortunate that the ringing station has been closed; in the summer of 1989/1990 some birds may return for the fourth time. Garden Warblers *Sylvia borin* and Great Reed Warblers *Acrocephalus arundinaceus* show a slightly higher return rate than they did in 1982, possibly due to the improvements to the habitat, but also possibly due to the fact that alternative habitat in the whole of the lower Shire valley has been decreasing, so that (as with other species where the percentage return has gone up) more individuals have had to crowd into the trapping area, increasing the chance of birds (especially passage ones) being recaught.

The return rate of the European Marsh Warbler *A. palustris* has dropped slightly, but the species occurred in small numbers between the summers of 1982/1983 and 1985/1986, so that there were few recaptures of old birds during the last three summers. As before, the European Sedge Warbler *A. schoenobaenus* and Redbacked Shrike *Lanius collurio* show little fidelity to the trapping area, although the percentage return has increased in both cases. The other Palaearctic migrants which have been ringed at Nchalo (Table 4) appear to show no desire to return to the garden, but as so few have been ringed this may not be a valid conclusion.

Table 2 shows the Afrotropical migrants which are known to have returned to Nchalo. In general, the percentage returns are higher than those for Palaearctic passerines and all species have returned for more than three years, unlike the Palaearctics. This may be due to the lower stress rate of their shorter migration (i.e. they live longer) or they may genuinely be more faithful to the area, since most are breeding migrants. The Woodland Kingfisher *Halcyon senegalensis* does breed nearby, but many of the birds were caught only while on passage, probably to and from Mozambique (Hanmer 1984). As with passage Palaearctics, the dates of capture indicate that they travel by the same route and with the same timetable each year. The Diederik Cuckoo *Chrysococcyx caprius* figure might

have been higher had the colony of Spottedbacked Weavers *Ploceus cucullatus* in the garden not diminished considerably over the last few years, possibly because (unintentionally) the males were caught far too frequently while they were collecting nesting material. Pygmy Kingfishers breed in the trapping area and it was noticeable that most of those which returned regularly were adults breeding close by, many of them known to be birds which had hatched in the area; only three of the immatures which spent their first winter at Nchalo, birds assumed to have migrated north from Natal or Mozambique, were ever retrapped as adults and these might well have been on passage southwards, as they were recaught in September. The Greyhooded Kingfisher *Halcyon leucocephala*, with a reasonable percentage return, probably breeds nearby, as adults were retrapped during the breeding season, but the majority of those caught were probably on passage.

The Paradise Flycatcher *Terpsiphone viridis*, whose overall return rate is fairly low, is interesting from another angle. There appear to be two populations, one found between October and March and the other between March and September. The 'summer' (breeding) birds were *T. v. violacea*, the common subspecies in Malawi (Benson & Benson 1977), but during March to June there was an influx of young birds which could not be assigned definitely to either subspecies. Some of the adult 'winter' birds were *T. v. granti*, presumably migrants from further south, but the majority were *violacea*. These were almost certainly altitudinal migrants, probably from the upland parts of Malawi, since none was retrapped during the summer months. The percentage returns for these two groups of birds differ considerably: the 'winter' group having a far higher rate of return. This is inexplicable, unless breeding birds deserted the garden in favour of neighbouring ones where no nets were set. A few other Afrotropical migrant species and two from Madagascar were ringed at Nchalo. None was ever recaptured, but the numbers ringed were small (Table 4).

Table 3 shows the percentage return of 'migrants' which only occurred at Nchalo at certain times of year. Here the figures vary considerably. Of the three breeding species, the Moçambique Nighjar *Caprimulgus fossii* which normally departs at the start of the rains (December or January) and returns in April/May, shows a reasonable rate of return, which might well have been higher had more effort been put into catching them at night over the last few years. Lesser Honeyguide *Indicator minor* (a winter/dry season visitor), also shows a high return rate, but the number ringed is small, while Klaas's Cuckoo *Chrysococcyx klaas* (winter/dry season), ringed in reasonably large numbers, appears to have had a low rate of return.

Of the other species, the Natal Robin *Cossypha natalensis*, an altitudinal migrant and a winter visitor, has an extremely high rate of return, especially considering the number ringed.

TABLE 1

'FINAL' AND (INTERIM) ANNUAL RECAPTURES OF PALAEARCTIC PASSERINES AT NCHALO, THE NUMBER RINGED AND THE PERCENTAGE WHICH HAVE RETURNED AT LEAST ONCE

SPECIES	YEAR AFTER RINGING								TOTAL RETURN	TOTAL RINGED	% RETURN
	1	2	3	4	5	6	7	8			
Thrush Nightingale *Luscinia luscinia*	6 (2)	3 (1)	2						11 (3)	139	10,1
Garden Warbler *Sylvia borin*	30 (6)	9 (3)	4 (2)	4 (1)	3				50 (12)	679	9,1
Willow Warbler *Phylloscopus trochilus*	1 (1)		1						2 (1)	30	10,0
Great Reed Warbler *Acrocephalus arundinaceus*	16 (6)	5 (2)	2 (2)	4 (1)	1 (1)		2	1	31 (12)	447	9,6
Basra Reed Warbler *A. griseldis*	9 (2)	3 (2)	2 (1)	1 (1)		(1)	1	1	17 (7)	112	21,4
European Reed Warbler *A. scirpaceus*		1	1						2	11	18,2
European Marsh Warbler *A. palustris*	6 (3)	4 (2)	3 (1)		(1)	1			14 (7)	216	9,7
European Sedge Warbler *A. schoenobaenus*	2	3							5	227	2,2
Spotted Flycatcher *Muscicapa striata*	2 (1)	1	1						4 (1)	34	14,7
Redbacked Shrike *Lanius collurio*	2		1						3	88	3,4

TABLE 2

'FINAL' AND (INTERIM) ANNUAL RECAPTURES OF AFROTROPICAL MIGRANTS AT NCHALO, THE NUMBERS RINGED AND THE PERCENTAGE WHICH HAVE RETURNED AT LEAST ONCE

SPECIES	YEAR AFTER RINGING									TOTAL RETURN	TOTAL RINGED	% RETURN
	1	2	3	4	5	6	7	8	9			
Diederik Cuckoo *Chrysococcyx caprius*	9 (3)	3 (2)	1 (1)	(1)	2					15 (7)	141	15,6
Pygmy Kingfisher *Ispidina picta*	22 (14)	12 (5)	5 (1)	2						41 (20)	440	13,9
Woodland Kingfisher *Halcyon senegalensis*	3 (1)	1 (1)	(1)	(1)		1				5 (4)	38	23,7
Greyhooded Kingfisher *H. leucocephala*	5 (2)	1 (2)	(2)	1	1					8 (6)	129	10,9
Paradise Flycatcher *Terpsiphone viridis* (all, summer & winter)	6 (3)	5	3 (2)	3	(1)	1		(1)	1	19 (7)	280	9,3
Summer	3 (1)	2		2						7 (1)	137	5,8
Winter	3 (2)	3	3 (2)	1	(1)	1		(1)	1	12 (6)	143	12,6

TABLE 3

'FINAL' AND (INTERIM) ANNUAL RECAPTURES OF 'MIGRATORY' BIRDS AT NCHALO.
THE NUMBERS RINGED AND THE PERCENTAGE WHICH HAVE RETURNED AT LEAST ONCE

SPECIES	YEAR AFTER RINGING									TOTAL RETURN	TOTAL RINGED	% RETURN
	1	2	3	4	5	6	7	8	9			
Klaas's Cuckoo *Chrysococcyx klaas*	4	1 (1)	1							6 (1)	80	8,8
Mocambique Nightjar *Caprimulgus fossii*	7 (2)	2 (1)	(3)	(2)	(2)	3 (1)	2	(1)	1	15 (12)	200	13,5
Bohm's Bee-eater *Merops boehmi*	7 (4)	4 (1)	(1)		(1)	(1)	1			12 (8)	49	40,8
Lesser Honeyguide *Indicator minor*	5		1							6	39	15,4
Black Cuckooshrike *Campephaga flava*		1	1							2	31	6,5
Forktailed Drongo *Dicrurus adsimilis*	(1)	1								1 (1)	54	3,7
African Golden Oriole *Oriolus auratus*			1							1	8	12,5
Blackheaded Oriole *O. larvatus*	3	1								4	33	12,1
African Sawwing *Psalidoprocne orientalis*	3	2		1						6	134	4,5
Natal Robin *Cossypha natalensis*	3 (2)	2 (2)	1 (1)	(1)	1 (1)	1				8 (7)	27	55,6
Cinnamon Reed Warbler *Acrocephalus cinnamomeus*	9 (3)	6 (2)	1 (3)	2 (1)	(4)	3 (2)	3	1		25 (15)	204	19,6
Yellow Warbler *Chloropeta natalensis*		2								2	18	11,1
Shortwing Cisticola *Cisticola brachyptera*	1 (5)	5		1 (1)	1					8 (6)	62	22,6
Dusky Flycatcher *Muscicapa adusta*	2		1							3	12	25,0
Coppery Sunbird *Nectarinia cuprea*	11 (3)	4 (1)	2	1		2				20 (4)	317	7,6
Purplebanded Sunbird *N. bifasciata*	6 (1)	1 (1)	4	3		1		1		16 (2)	378	4,8
Yellow Weaver *Ploceus subaureus*	10 (2)	11 (2)	5 (1)	8	3	1	1			39 (5)	338	13,0

Böhm's Be-eater *Merops boehmi* also shows a high percentage return. Although this species does breed nearby, it is considered that it does not breed in the trapping area, as no visibly immature birds have been seen there, nor was the species present in the garden between late September and January, during which time it was breeding in Lengwe National Park, some 25 km distant. This species may also be some sort of altitudinal migrant, as there was usually an influx into the lower Shire valley during May and June and a flock of about 30 were seen flying down the Shire River on 29 May 1988.

The Cinnamon Reed Warbler *Acrocephalus cinnamomeus* has a fairly high return rate and also does not breed in the garden. There was usually an influx from April or May and the species generally disappeared again in November or December (breeding appears to occur in the marshes and cane fields nearby during the rains in December to April). The Shortwing Cisticola *Cisticola brachyptera*, also with a high return rate, was likewise a non-breeding visitor between March and December, probably breeding nearby during the rains, while the Yellow Weaver *Ploceus subaureus* also breeds in the nearby marshes, but returned regularly to dry-season feeding areas in the grassland and thickets round the garden.

Both orioles, the Yellow Warbler *Chloropeta natalensis* and the Dusky Flycatcher *Muscicapa adusta* all spend the winter months at Nchalo and appear to have a reasonable rate of return, but very few were ringed, so the figures may not be entirely valid. All these species, with the exception of the Blackheaded Oriole *Oriolus larvatus*, are known altitudinal migrants (Benson & Benson 1977) and all four breed in the woodlands on and at the foot of the escarpments some distance away, as does the Black Cuckooshrike *Campephaga flava* (altitudinal migrant), but the return rate in this species appears to be low. Practically all the Forktailed Drongos *Dicrurus adsimilis* caught at Nchalo were immature. This species breeds in the escarpment woodlands and in Lengwe National Park, so it is possible that the influx of young birds in April and May (all of which departed in September) was merely juvenile dispersal, even though one bird is known to have returned twice as an adult.

The African Sawwing *Psalidoprocne orientalis* was a winter visitor (and is presumably an altitudinal migrant) and probably had a far higher return rate than the figures indicate. Trapping swallows requires fairly special weather conditions and a hatch of insects near a net, so, considering that six birds are known to have returned in following winters, it seems likely that many more have also done so. Furthermore, swallows are not confined to feeding in the trapping area and flocks may range over the whole lower Shire valley, so that retrapping them is a matter of luck. The two sunbirds, both altitudinal migrants, alternate in the Nchalo area, the Coppery Sunbird *Nectarinia cuprea* being present and moulting between April

and December, while the Purplebanded Sunbird *N. bifasciata* moults there between November and June - or sometimes August (Hanmer 1981). The percentage return appears to be low, but as with the swallow, sunbirds are not confined to the natural woodland and thicket of the trapping area but spread out over the whole housing area, moving from one garden to another as food sources appear, so it is probable that the return rate is really much higher, especially considering that some individuals have been recaught six to eight years after they were ringed. Small numbers of five other altitudinal migrant species were ringed, but none was retrapped (Table 4).

TABLE 4

MIGRATORY SPECIES NEVER RETRAPPED AT NCHALO AND THE NUMBER RINGED TO JUNE 1988

TYPE	SPECIES	NUMBER RINGED
PALAEARCTIC	Little Bittern *Ixobrychus m. minutus*	1
	Little Stint *Calidris minuta*	6
	Common Sandpiper *Tringa hypoleucos*	23
	Green Sandpiper *T. ochropus*	1
	Wood Sandpiper *T. glareola*	14
	European Cuckoo *Cuculus canorus*	1
	Lesser Cuckoo *C. poliocephalus*	3
	European Nightjar *Caprimulgus europaeus*	5
	European Bee-eater *Merops apiaster*	5
	Bluecheecked Bee-eater *M. persicus*	59
	European Swallow *Hirundo rustica*	170
	European Golden Oriole *Oriolus oriolus*	11
	Rufous Bush Chat *Cercotrichas galactotes*	1

TABLE 4 (CONTD.)

TYPE	SPECIES	NUMBER RINGED
PALAEARCTIC (contd.)		
	Icterine Warbler *Hippolais icterina*	2
	Olivetree Warbler *H. olivetorum*	5
	River Warbler *Locustella fluviatilis*	8
	Yellow Wagtail *Motacilla flava*	8
AFROTROPICAL	Harlequin Quail *Coturnix delegorguei*	2
	Jacobin Cuckoo *Clamator jacobinus*	10
	Pennantwinged Nightjar *Macrodipteryx vexillaria*	2
	Carmine Bee-eater *Merops nubicoides*	12
	Plumcoloured Starling *Cinnyricinclus leucogaster*	14
	Redheaded Quelea *Quelea erythrops*	43
MADAGASCAR	Madagascar Cuckoo *Cuculus rochii*	1
	Olive Bee-eater *Merops superciliosus*	8
ALTITUDINAL	Whitethroated Swallow *Hirundo albigularis*	18
	Black Sawwing *Psalidoprocne holomelas*	8
	Starred Robin *Pogonicichla stellata*	5
	Longtailed Wagtail *Motacilla clara*	1
	Black Sunbird *Nectarinia amethystina*	9

That Palaearctic passerines are faithful to their winter quarters is fairly well-known, individuals generally returning to the same group of bushes or clumps of thicket year after year. I am not aware of any publication dealing with fidelity to breeding or wintering/moulting areas by Afrotropical migrants (apart from Hanmer 1979, 1980, 1981), altitudinal migrants, or species which merely make short, local movements away from breeding areas in the off-season. However, it appears that individuals of many such species do return regularly to a particular location. Presumably, when they leave Nchalo, they also return faithfully to a specific location at the other end of their migration or local movement.

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