COLOURATION, SIZE AND MOULT IN THE REDHEADED FINCH

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This study of Redheaded Finches, *Amadina erythrocephala* extended from February 1987 to October 1991. During this period 880 birds were caught, measured and ringed. Moult cards were completed for 250 birds.

When I first started ringing in 1987 Redheaded Finches were commonly netted in my garden in Secunda, Transvaal. This made them the perfect subject for study as they were always "available". When I moved 150 km west from Secunda to Vanderbijlpark in 1990 Redheaded Finches were again fairly common in my garden.

Although the Redheaded Finch is a common and supposedly well-known bird, I soon ran into trouble distinguishing between females and immature males. According to the commonly-used handbooks, the immature male resembles the female (Prozesky 1970, Ginn *et al.* 1989). Maclean (1985) describes the immature male as a duller version of the adult with only a trace of red on the head. Other field guides (Newman 1983, Sinclair 1984) do not refer to immature birds.

There are only two authorities who correctly describe the immature bird as a duller version of the adult: Mackworth-Praed and Grant (1963) and Liversidge (1991).

Handbook illustrations, especially of the female, often leave much to be desired and are poorly presented.

SEX AND AGE-RELATED PLUMAGE CHARACTERISTICS

I found that males and females could always be distinguished from one another because immature or juvenile males do not resemble females at any stage after leaving the nest. A juvenile is here defined as a free-flying bird still under parental care; an immature bird is an independent subadult.

Immature males are a duller version of the adult male bird; the head is pinkish-red rather than bright red or crimson and the extent of red colouration is slightly less than in the adult bird. Immature males have a dark chin which appears blackish whilst adult males have a fine darkish barring under the chin which appears red. In the adult male the chestnut on the flanks and chest is more extensive and much more intense than in immature males.

Females are much duller birds than the males and are more earth brown on the upperparts than males. Males can also at all times be separated from females by the pearl-like markings on the chest and flanks whereas females are more barred or scaly.

All females however have a slight red wash over the forehead and crown; in the immature females this is duller than in the adult females.

Immature birds in the hand can be separated from adults in several ways.

Birds that have just fledged have a thick swollen white gape and can thus be identified easily. Immature birds can be identified by their purplish pink legs or by their dark purplish blue palate. The colour of the legs turns to pinkish flesh between 4 and 6 months but the blue colour of the palate changes to pink over a much longer period of time and may take as long as 18 to 24 months.

It was also found that a small percentage of birds (about 15%) had a slight red wash

over the upper tail coverts. This was much more common in immature birds than in adults. This reddish wash may disappear as the birds get older but this was not confirmed in the course of this study.

MENSURAL DATA

Measurements of 884 birds are given in Table 1. Wing measurements were all done according to the longest chord method. Culmen measurements are from bill tip to union with skull.

From these data it is evident that the range of values for males are wider than for females but no distinctive size difference could be found between the sexes. The average of all measurements is the same for males and females.

In immatures the average culmen and tail lengths were shorter than in adult birds. Recorded mass for immatures was also slightly lower than for adult birds.

TABLE 1

MENSURAL DATA FOR THE REDHEADED FINCH

		MALE		FEMALE	
		ADULT	IMMATURE	ADULT	IMMATURE
SAMPLE SIZE		403	56	386	38
WING:	MIN	68,0	71,0	67,0	69,0
	MAX	81,0	77,0	78,0	77,0
	MEAN	73,7	73,0	73,1	73,9
	S.D.	1,99	2,13	1,80	1,87
TAIL:	MIN	42,0	45,0	42,0	43,0
	MAX	57,0	52,0	56,0	51,0
	MEAN	49,8	48,3	48,3	47,2
	S.D.	2,01	1,99	2,06	1,73
TARSUS:	MIN	14,3	15,0	14,0	14,0
	MAX	18,6	16,9	17,6	17,4
	MEAN	16,5	16,1	16,3	16,2
	S.D.	0,52	0,68	0,81	0,50
CULMEN:	MIN	10,8	10,6	10,4	10,7
	MAX	13,4	12,4	13,2	12,4
	MEAN	12,0	11,4	11,8	11,4
	S.D.	0,45	0,56	0,37	0,49
MASS:	MIN	18,5	19,1	17,7	17,7
	MAX	27,0	24,3	26,6	23,6
	MEAN	22,7	21,2	22,6	20,7
	S.D.	1,41	1,22	1,60	1,73

MOULT

The Redheaded Finch has 10 primaries, 6 secondaries and 3 tertials with the outermost primary being minute. Rectrices number 12.

Moult begins at the end of the breeding season which, in the study area, extends from mid-July to November. This is the period in which approximately 80% of all juvenile birds were caught.

Moult starts on the head and body with primaries following soon after. Table 2 gives the number of adult birds examined for moult per month.

Retrap data indicates that moult takes place only once per year.

Wing Moult

Primary moult
Moult in the wing starts with the innermost primary and the moult is descendant towards the wing tip. Primaries moult in sequence and are dropped consecutively with the previous primary at a score of 4 (nearly full grown). In only 6% of the cases was the primary score 3 when the next primary was dropped. In only one case were 3 primaries in moult simultaneously.

Secondary and tertial moult
Secondaries and tertials are here numbered S1 to S9 (as on the moult cards) from the middle of the wing towards the body.

The first secondary dropped is S8 and this starts at a P-score of between 3 and 30 with an average of 20. S1 usually drops just after S8 at a P-score between 16 and 27 (average 23). Moult of the secondaries is ascendant from S1 to S6 and the sequence for S7-S9 is S8, S9 and S7.

Each secondary has a score from 3 to 5 before the next is dropped. S7 to S9 is normally completed at an S3 score of 1 to 5 and a P-score of between 30 and 45. Secondary moult is usually completed at P-scores between 40 and 45, mostly at 45.

TABLE 2

MONTHLY MOULT DISTRIBUTION IN THE REDHEADED FINCH

MTH	NO. NETTING SESSIONS	MOULT	NIL MOULT	TOTAL	% MOULT	% NIL MOULT
JAN	7	20	0	20	100	0
FEB	5	14	1	15	93	7
MAR	5	10	19	29	34	66
APR	10	5	36	41	12	88
MAY	13	0	45	45	0	100
JUN	4	1	23	24	4	96
JUL	6	14	28	42	33	67
AUG	3	14	11	25	56	44
SEP	9	40	12	52	77	23
OCT	8	74	14	88	84	16
NOV	15	102	18	120	85	15
DEC	15	48	3	51	94	6
TOTAL	100	342	210	552		

Wing coverts and alula
The greater wing coverts, including the carpal covert, normally moult in quick succession often with all in pin. There is no sequence in greater covert moult. Greater coverts are dropped at a P-score range of 11 to 21.

Lesser and median wing coverts normally start moulting at a P-score between 15 and 25 and are completed at a P-score between 40 and 45.

The alula moult starts between P-score 20 and 35. This is also rapid and often all three feathers are in pin simultaneously. The sequence for the alula is A1, A2 and A3. The alula moult is normally complete at P-score 35 to 40.

Rectrices
The moulting of the rectrices is random and very irregular and does not follow a pattern. Some birds drop one or two feathers at a time whilst others drop between 8 and 11 at a time. Usually the first rectrix is dropped at a P-score of between 15 and 20 but occasionally the first rectrix is dropped at P-score 5. Tail moult is completed just before that of primary moult.

Body Moult

The onset of head and body moult is just before the first primary is dropped and is completed simultaneously with the primary moult.

Moult Duration

Moult duration as determined by a scatter diagram is approximately 160 days. The diagram of primary moult against date was drawn up from the 250 moult cards completed.

A female caught and ringed on 28.09.1988 with a P-score of 16 was retrapped on 17.12.1988 with a P-score of 36 (an elapsed time of 80 days). This suggests that the estimated moult duration of 160 days is not too far off the mark.

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