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WEIGHTS OF SOUTHERN AFRICAN SUNBIRDS

(AVES: NECTARINIIDAE)

by

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Twenty-one sunbird species occur in southern Africa south of the Zambezi River. The genus *Nectarinia* is represented by 18 species, and *Anthreptes* by three (Clancey 1980). This paper presents 1 553 weights for all but two regional species and four subspecies.

The majority (90,2%) of the weights were obtained from live birds caught for ringing purposes, while the rest are from specimens in the Durban Museum, which are believed to be accurate. Pesola spring balances as well as triple-beam balances were used and weights are believed to be accurate to the nearest 0,5 g. Data are presented by subspecies within species following Clancey (1980) and presented as homogeneously as possible as great variation occurs in birds with changes in altitude and latitude (*cf.* Britton 1977; Hanmer 1978). If weights from two or more localities are listed together, it is because they were believed not to differ. Five or more weights are not listed individually but described in terms of the mean, SD, range and sample size. In two cases samples were sufficiently large to be given by month, otherwise weights are listed as winter (w = April-August) or summer (s = September-March); all are given in grams. If fewer than five weights were available or where the locality was not known the figures were listed individually and the means are given in brackets. The distinct sexual dimorphism in all but some *Nectarinia olivacea* and *N. verouxii* allowed results for males and females to be separated. All birds were adults except those indicated as juvenile or sub-adult individuals (J).

NECTARINIA FAMOSA (LINNAEUS)

Nectarinia famosa famosa (Linnaeus)

Melville Koppies Nature Reserve (26° 10' S., 28° 00' E.)

w ♂ 20,0

wJ 15,0

[Price R3,00 nett]

Ashburton, Pietermaritzburg (29° 38' S., 30° 28' E.)

w ♂ 16,2

w J 2 14,2

Langebaan (33° 08' S., 18° 05' E.), Klaarstroom (33° 17' S., 22° 25' S.),
Strowan, Cape (33° 18' S., 26° 28' E.)

s ♂ 20,0 16,0 18,0 (18,0)

s ♀ mean 14,3 SD 1,63 range 12,0-16,0 n = 6

w ♂ 18,0 17,0 20,0 (18,3)

Klawervlei (34° 01' S., 18° 51' E.), Somerset West (34° 05' S., 18° 51'
E.), Sir Lowrys Pass (34° 07' S., 18° 55' E.), Potberg (34° 22' S., 20°
33' E.), De Hoop, Cape (34° 27' S., 20° 24' E.)

s ♂ 20,0 16,0 (18,0)

s ♀ 16,0 15,5 14,5 (15,3)

s J 15,8

w ♂ 17,0 17,0 16,0 17,0 (16,8)

w ♀ mean 14,2 SD 0,47 range 13,5-15,5 n = 9

w J ♂ 16,5

Port Elizabeth (34° 05' S., 25° 30' E.)

w ♀ 15,4

Pilgrims Rest (24° 49' S., 30° 41' E.)

w ♂ 21,9 20,3 (21,1)

w J 13,8 12,5 (13,2)

No locality

s ♂ 17,0 15,5 17,3 15,5 (16,3)

s ♀ 15,0

s J ♂ 12,5

w ♂ 17,5

w ♀ mean 15,0 SD 0,84 range 14,0-16,0 n = 6

In all the localities males are heavier than females in both summer and winter. Samples are, however, too small to draw any further conclusions.

NECTARINIA KILIMENSIS SHELLEY

Nectarinia kilimensis arturi Sclater

Utley, Inyanga (18° 24' S., 32° 31' E.)

s ♀ 15,3 13,6 15,2 15,1 (14,8) one of 11,7(?)

w ♂ 16,0

w J ♀ 13,5

Umtali (19° 00' S., 32° 40' E.)

w ♂ 15,8

Although the sample is small, males seem to be heavier than females.

NECTARINIA VIOLACEA (LINNAEUS)***Nectarinia violacea*** (Linnaeus)

Klawervlei (34° 01' S., 18° 46' E.), Sneewkop (34° 03' S., 18° 59' E.)

w ♂ mean 10,1 SD 0,56 range 9,2-11,3 n = 12

Port Elizabeth (34° 05' S., 25° 30' E.) (Liversidge (1968))

w (no sex) 9,3 9,2 (9,3)

No locality (Broekhuysen 1963)

no date ♂ 9,0 9,7 10,5 (9,7)

no date ♀ 8,6 8,9 9,7 (9,1)

It seems as if males are about 1,0g heavier than females but larger samples are needed for this relatively common bird.

NECTARINIA CUPREA (SHAW)***Nectarinia cuprea chalcea*** Hartlaub

"Muruwati" farm, Mazoe (17° 36' S., 30° 55' E.)

s ♂ 9,0 8,5 10,1 (9,2)

s J ♂ 11,0

s ♀ 8,2 9,1 (8,7)

s J ♀ 9,7

s J 8,2 9,1 (8,7)

Males are marginally heavier than females.

NECTARINIA MARIQUENSIS (SMITH)***Nectarinia mariquensis mariquensis*** (Smith)

Bulawayo (20° 03' S., 28° 32' E.), Matopos Research

Station (20° 22' S., 28° 30' E.)

w ♂ 13,0 10,3 (11,7)

w (no sex) 12,0 9,0 13,4 (11,5)

Esperance (22° 00' S., 17° 57' E.), Frauenstein

(22° 24' S., 17° 20' E.)

s ♂ 11,0

s (no sex) 10,7

Vogelfontein (24° 37' S., 28° 43' E.), Mosdene (24° 34' S., 28° 45' E.)

s ♂ 12,5 11,5 (12,0)

s ♀ 10,0

w ♂ 14,2

w ♀ 11,0

Bundu Inn (25° 17' S., 29° 04' E.)

w ♂ 12,0

Onderstepoort Nature Reserve (25° 38' S., 28° 10' E.)

s ♂ 11,0 12,3 (11,7)

Barberspan (26° 33' S., 25° 36' E.)

s ♂ 11,4 12,5 (12,0)

s ♀ 10,6

w ♀ 10,1 11,2 (10,7)

w J 11,2

50 km north of Pietersburg (no precise locality)

s ♂ 13,5

s ♀ 11,5

Nectarinia mariquensis lucens Clancey

Pongola (27° 23' S., 31° 38' E.)

w ♂ mean 13,2 SD 0,38 range 12,6-13,5 n = 5

w ♀ 10,5 11,8 10,2 (10,8)

w J ♂ mean 12,4 SD 0,86 range 11,3-13,4 n = 5

Nectarinia mariquensis ovamboensis (Reichenow)

Rundu, Kavango (17° 52' S., 19° 49' E.)

s ♂ mean 11,1 SD 0,75 range 10,4-12,3 n = 6

s ♀ 8,5 7,0 9,9 (8,5)

s J ♂ 13,2

s J ♀ 7,5

The northern form, *ovamboensis*, is smaller than the other southern races, while the eastern lowland form from Pongola, *lucens*, is the heaviest, in males at least. Because of the small samples there is no definite pattern. Males are heavier than females in all forms dealt with.

NECTARINIA BIFASCIATA (SHAW)

Nectarinia bifasciata strophium (Clancey & Williams)

“Muruwati” farm, Mazoe (17° 36' S., 30° 55' E. & 17° 32' S., 30° 59' E.)

s ♂ mean 8,5 SD 0,67 range 7,0-9,5 n = 12

s ♀ mean 7,8 SD 0,27 range 6,0-8,0 n = 5

s J ♂ 8,0 8,0 8,0 (8,0)

s J ♀ 7,0

w ♂ 7,0

Umtali (19° 00' S., 32° 40' E.)

s J ♂ 8,2

w ♂ mean 7,3 SD 0,53 range 6,1-8,4 n = 13

w ♀ 7,6 6,5 6,8 (7,0)

w J ♂ 7,1 6,9 8,2 7,3 (7,4)

w J ♀ 6,6 6,3 (6,5)

Mean summer weights are marginally heavier than those taken in winter in both males and females but variations are much too great to draw any definite conclusions. Males are generally heavier than females but there is some overlap in their weight ranges.

NECTARINIA NEERGAARDI (GRANT)*Nectarinia neergaardi* (Grant)

Panda, Inhambane (24° 02' S., 34° 45' E.)

w ♂ mean 6,5 SD 0,38 range 6,2-7,1 n = 7

w ♀ 5,6

w J ♀ 5,9

NECTARINIA CHALYBEA (LINNAEUS)*Nectarinia chalybea chalybea* (Linnaeus)

Klawervlei (34° 01' S., 18° 46' E.), Somerset West (34° 05' S., 18° 52' E.), Langebaan (33° 08' S., 18° 05' E.)

Bergrivier (32° 54' S., 18° 20' E.), Klaarstroom (33° 17' S., 22° 25' E.), Tamboerskloof (33° 56' S., 18° 22' E.), De Hoop (34° 28' S., 20° 27' E.), Audtuin (34° 04' S., 20° 26' E.)

s ♂ mean 7,9 SD 0,89 range 6,0-9,0 n = 8

s ♀ mean 7,0 SD 0,71 range 6,0-8,0 n = 7

w ♂ mean 8,7 SD 0,67 range 7,5-9,5 n = 11

w ♀ mean 7,0 SD 0,01 range 7,0-7,1 n = 5

s J ♂ 8,5

s J ♀ 7,0

w J ♂ 8,0 8,1 (8,0)

w ♀ 7,5 7,5 (7,5)

w J (no sex) 7,0

Nectarinia chalybea subalaris (Reichenow)

Nkandhla Forest (28° 45' S., 31° 07' E.), Qudeni Forest (28° 41' S., 30° 45' E.)

s ♂ mean 8,2 SD 0,81 range 6,8-8,8 n = 5

s ♀ 7,4 7,9 (7,7)

No locality

no date ♂ 8,8

Pietermaritzburg (29° 37' S., 30° 22' E.)

s ♂ 8,2

s ♀ 8,1

Nectarinia chalybea capricornensis (Roberts)

Pilgrims Rest (24° 49' S., 30° 41' E.), Sabie (25° 05' S., 30° 49' E.)

s ♀ 9,5

w ♂ 7,8

w ♀ 6,9 6,9 7,5 (7,1)

Males are heavier than females in both summer and winter.

NECTARINIA MANOENSIS (REICHENOW)*Nectarinia manoensis manoensis* (Reichenow)

"Muruwati" farm, Mazoe (17° 35' S., 30° 55' E.), "Chirawando" farm, Sinoia (17° 37' S., 30° 18' E.)

s ♂ mean 9,8 SD 0,32 range 9,3-10,6 n = 8
 s ♀ mean 8,7 SD 1,06 range 6,4-10,0 n = 14
 s J♂ mean 9,7 SD 0,54 range 9,0-10,4 n = 7
 s J♀ 8,3 9,0 (8,7)
 s J 9,2 9,0 10,0 (9,4)
 w ♂ mean 10,0 SD 1,15 range 9,4-11,0 n = 7
 w ♀ 9,9 9,4 8,5 8,9 (9,2)
 w J♂ 9,8 9,3 (9,6)
 w J 7,8

Vumba (19° 08' S., 32° 50' E.)

s ♂ 7,0 9,7 (8,4)
 s ♀ 6,0
 s J♂ 9,6 11,0 (10,3)
 w ♂ mean 10,6 SD 0,77 range 9,4-11,7 n = 8
 w ♀ mean 9,3 SD 1,09 range 8,0-11,2 n = 6
 w J♂ 11,5 9,1 (10,3)
 w J♀ 9,9 9,5 8,9 (9,4)

Salisbury (17° 45' S., 31° 08' E.), (17° 50' S., 31° 04' E.), (17° 53' S., 31° 04' E.)

s ♂ 9,0
 s J♂ 9,4
 w ♂ 10,0 10,0 (10,0)
 w ♀ 8,0 11,0 (9,5)
 w J♂ 11,5 10,9 10,0 (10,8)
 w J♀ mean 8,6 SD 0,19 range 8,4-8,9 n = 5

Bulawayo (20° 03' S., 28° 32' E.), Matopos Research Station (20° 22' S., 28° 30' E.)

s ♂ 10,0 11,5 (10,8)
 s ♀ 8,0
 w ♂ mean 10,3 SD 0,72 range 9,4-12,0 n = 10
 w ♀ mean 8,5 SD 0,21 range 8,0-9,1 n = 5

Utley, Inyanga (18° 24' S., 32° 31' E.)

s ♀ 9,4
 w ♀ 11,1

Chingameri, Wedza (18° 32' S., 31° 37' E.), Peterhouse (18° 12' S., 31° 38' E.)

w ♀ 9,0 SD 0,89 range 8,0-10,0 n = 6
 w J♂ 10,0 9,4 (9,7)
 w J♀ 8,1

Zimbabwe Ruins (20° 16' S., 30° 55' E.)

s ♂ mean 10,4 SD 1,08 range 9,5-11,7 n = 5
 s ♀ 10,0 8,8 9,0 (9,3)
 w ♂ 8,1 10,2 (9,1)
 w ♀ 8,0 9,3 9,7 (9,0)

Crowborough (17° 51' S., 31° 56' E.) & district

s ♂ 10,0

s ♀ 9,5

s J ♂ 10,5

w ♂ 10,0 9,0 (9,5)

w ♀ 11,0

Males are heavier than females. Birds weighed in winter at Mazoe, the Vumba and Bulawayo are heavier than those handled in summer, although only marginally so. Birds from the northern districts of Mazoe and the Vumba seem to be lighter on average than the more southern specimens.

NECTARINIA AFRA (LINNAEUS)

Nectarinia afra afra (Linnaeus)

Uitenhage (33° 46' S., 25° 25' E.)

s ♀ 9,8

w ♂ 12,7 12,3 (12,5)

w ♀ 11,3

Nectarinia afra saliens Clancey

Pietermaritzburg (29° 33' S., 30° 20' E.)

w ♀ 8,1

White River (25° 20' S., 31° 00' E.)

s ♂ 11,5 12,0 (11,8)

w ♂ 11,0

Pilgrims Rest (24° 51' S., 30° 41' E.)

s ♀ 9,5

w ♂ 13,3 11,8 13,0 (12,7)

w ♀ 9,2 10,7 (10,0)

Zoutpansberg (no precise locality)

w J 13,3

Males are heavier than females in both forms.

NECTARINIA VENUSTA (SHAW & NODDER)

Nectarinia venusta niassae (Reichenow)

Vumba (19° 07' S., 32° 47' E.), (19° 10' S., 32° 45' E.), (19° 08' S., 32° 50' E.)

Jan ♂ mean 7,9 SD 0,78 range 7,1-9,3 n = 7

Feb ♂ 6,5

Mar ♂ 7,2 7,5 7,3 (7,3)

Apr ♂ mean 7,2 SD 0,73 range 6,7-8,1 n = 9

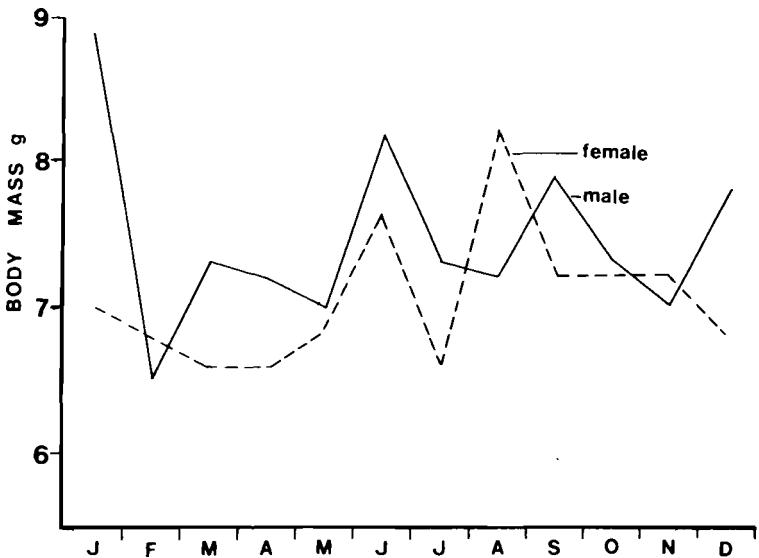
May ♂ 8,1 6,7 6,2 (7,0)

Jun ♂ 8,8 7,9 8,0 (8,2)

Jul ♂ mean 7,3 SD 0,47 range 6,2-8,0 n = 18

Aug ♂ mean 7,2 SD 0,22 range 7,0-7,5 n = 5
 Sep ♂ 8,2 7,5 (7,9)
 Oct ♂ 7,0 7,0 7,4 7,7 (7,3)
 Nov ♂ mean 7,0 SD 0,45 range 6,1-7,8 n = 15
 Dec ♂ mean 7,8 SD 0,68 range 6,5-9,1 n = 11
 Jan ♀ 6,5 7,1 7,4 (7,0)
 Mar ♀ mean 6,6 SD 1,42 range 5,6-9,1 n = 5
 Apr ♀ mean 6,6 SD 0,55 range 5,6-7,3 n = 11
 May ♀ mean 6,8 SD 0,63 range 6,2-8,2 n = 11
 Jun ♀ 7,8 7,2 (7,6)
 Jul ♀ mean 6,6 SD 0,44 range 5,7-7,3 n = 15
 Aug ♀ 10,0 6,6 7,6 (8,3)
 Sep ♀ 7,2
 Nov ♀ mean 7,2 SD 1,03 range 6,0-9,0 n = 7
 Dec ♀ mean 6,8 SD 0,36 range 6,0-7,0 n = 9
 s J ♂ mean 6,8 SD 0,61 range 5,6-7,5 n = 14
 s J ♀ mean 6,8 SD 0,79 range 5,5-7,5 n = 14
 w J ♂ mean 7,3 SD 0,37 range 6,8-7,7 n = 7
 w J ♀ mean 6,7 SD 0,48 range 5,5-7,2 n = 10
 Utley, Inyanga (18° 24' S., 32° 31' E.)
 s ♂ 7,5
 w ♂ 8,0 7,5 (7,8)
 w ♀ 8,1

FIGURE 1



Monthly variations in the mean body weights of *Nectarinia venusta niassae* from the Vumba, Zimbabwe. For ranges and sample sizes see text.

Wedza Mountain (18° 43' S. 31° 36' E.)

s ♂ 6,3

s ♀ 8,3

Dichwe (17° 05' S., 30° 05' E.)

s J (no sex) 8,5

Manchester (19° 11' S., 32° 45' E.), Umtali (19° 00' S., 32° 40' E.)

w ♂ mean 7,4 SD 0,38 range 6,9-8,0 n = 7

w ♀ 7,0 8,3 6,7 6,6 (7,2)

w J ♂ 8,4

w J ♀ 7,1

The large sample from the Vumba shows that males are heavier than females almost all year round, except in August (fig. 1). This is probably a result of the approaching breeding season, with the males displaying and thus losing weight while the females accumulate reserves in preparation for egg-laying.

NECTARINIA TALATALA (SMITH)

Nectarinia talatala aresta Clancey

Pretoria Univ. Exp. Farm (25° 45' S., 28° 17' E.), Onderstepoort

Nature Reserve (25° 38' S., 28° 10' E.), Les Marais, Pretoria
(25° 45' S., 28° 07' E.)

s ♂ 9,5 8,5 9,0 9,0 (9,0)

w ♂ mean 8,8 SD 0,78 range 7,8-10,0 n = 11

w ♀ 7,5 7,7 7,6 6,0 (7,2)

w J ♂ 8,5 8,0 8,0 10,0 (8,6)

w J ♀ 7,2 8,4 (7,8)

Hekpoort (25° 55' S., 27° 34' E.), Skeerpoort (25° 50' S., 27° 45' E.)

s ♀ 8,0 7,0 (7,5)

w ♀ 9,0

Bundu Inn (25° 17' S., 29° 04' E.), Mosdene (24° 34' S., 28° 45' E.)

s ♂ 9,0 8,0 (8,5)

w ♂ 9,0 8,0 (8,5)

Roodeplaat Dam (25° 38' S., 28° 21' E.)

s ♂ 9,5

s ♀ 7,5

s J ♂ 8,5

w ♂ 7,5

Melville Koppies Nature Reserve (26° 10' S., 28° 00' E.), Honeydew

(26° 04' S., 27° 58' E.)

s ♂ 9,1

s ♀ 7,0

w ♂ 9,0 8,0 (8,5)

w ♀ 9,0 7,0 (8,0)

w J ♂ 8,0 9,0 9,0 (8,7)

Ashburton (29° 38' S., 30° 28' E.), Ukulinga, Pietermaritzburg
(29° 40' S., 30° 24' E.)

s ♂ mean 8,5 SD 0,51 range 7,7-9,1 n = 12

s ♀ 7,1 9,0 8,2 9,1 (8,4)

w ♂ mean 8,3 SD 0,57 range 6,7-9,3 n = 16

w ♀ 7,2 7,7 8,1 7,5 (7,6)

s J ♂ 7,9 7,7 (7,8)

s J ♀ 7,8

s J 8,0 7,4 (7,7)

w J ♂ mean 8,5 SD 0,47 range 7,8-9,0 n = 7

w J ♀ mean 7,2 SD 0,20 range 6,9-7,5 n = 6

w J 7,3

Beaconsfield, Estcourt (29° 00' S., 30° 00' E.)

s ♂ mean 9,4 SD 0,50 range 9,1-1,03 n = 5

s ♀ 8,4 7,3 9,0 (8,2)

s (no sex) J? mean 9,0 SD 0,62 range 7,7-9,8 n = 9

Durban (29° 48' S., 31° 02' E.)

s ♂ 9,3

w (no sex) 7,6 8,4 (8,0)

Nectarinia talatala talatala (Smith)

Warmbaths (24° 55' S., 28° 15' E.)

s ♀ 10,5

Rockdale, Waterpoort (22° 53' S., 29° 41' E.)

s ♂ 7,0

Central Transvaal (Skead 1974)

no date ♂ mean 8,1 SD ? range 7,5-9,5 n = 3

no date J ♂ 8,6

Barberspan (26° 33' S., 25° 36' E.)

w J ♂ 8,6

Norwood, Bulawayo (20° 03' S., 28° 32' E.)

w ♂ mean 8,2 SD 0,54 range 8,0-9,1 n = 10

w ♀ 6,0 6,7 6,7 (6,5)

w J ♂ 7,8 9,5 (8,7)

w (no sex) 10,0 8,0 (9,0)

“Muruwati” farm, Mazoe (17° 36' S., 30° 55' E.)

“Chirawando” farm, Sinoia (17° 37' S., 30° 18' E.)

s ♂ mean 7,2 SD 1,12 range 6,0-8,4 n = 6

s (no sex) 5,7 6,4 (6,1)

w ♂ mean 7,6 SD 0,71 range 6,8-8,9 n = 10

w ♀ 7,0 6,8 (6,9)

w J ♂ 8,0

w J ♀ 6,1

Sewage ponds, Que-Que (18° 53' S., 29° 50' E.)

w ♂ 6,0

Nectarinia talatala anderssoni Strickland

Rundu, Kavango (17° 52' S., 19° 49' E.)

s ♂ mean 7,4 SD 0,68 range 6,4-8,1 n = 6

s ♀ 6,7 5,1 6,5 (6,1)

s J ♂ 6,5

s J ♀ 6,2

Island 126, Kariba (16° 48' S., 28° 16' E.)

s ♂ 7,7

Vumba (19° 08' S., 32° 50' E.)

s ♂ mean 7,1 SD 0,54 range 6,5-7,6 n = 6

s ♀ 6,7 6,5 4,8 6,4 (6,1)

White River (25° 20' S., 31° 00' E.)

w ♂ 8,0

w ♀ 7,0

Males are heavier than females in all forms. The northern taxa, *anderssoni* and *talatala*, are lighter than the southern form, *aresta*. Summer weights for *aresta* are marginally heavier than winter ones.

NECTARINIA FUSCA (VIEILLOT)***Nectarinia fusca fusca*** (Vieillot)

Windhoek (22° 34' S., 17° 06' E.)

s (no sex) 8,0 8,0 (8,0)

Barberspan (26° 33' S., 25° 36' E.)

no date ♂ 10,0

NECTARINIA VEROXII (SMITH)***Nectarinia veroxii veroxii*** (Smith)

Ashburton (29° 38' S., 30° 28' E.)

s (no sex) 11,1 10,9 12,6 (11,5)

w (no sex) 10,9 10,5 12,8 12,3 (11,6)

w J 11,7

Bluff forest, Durban (29° 56' S., 31° 00' E.), Monteith plato, Durban
(29° 47' S., 31° 02' E.)

s (no sex) 10,9

w (no sex) 12,3 10,0 (11,2)

Mtunzini (28° 58' S., 31° 56' E.)

s (no sex) 11,0 11,5 10,6 9,5 (10,7)

s J 9,5

w (no sex) 11,4 10,0 11,4 11,7 (11,1)

Nectarinia veroxii fischeri (Reichenow)

Pongola (27° 33' S., 31° 38' E.)

w ♂ mean 10,1 SD 0,66 range 9,4-11,2 n = 5

w ♀ 9,1 9,2 9,0 9,0 (9,1)

w J ♂ 9,2

w J ♀ 9,3

The sexed sample for *fischeri* indicates that males are heavier than females. The east coast race, *fischeri*, seems to be lighter in weight than *veroxii*.

NECTARINIA OLIVACEA (SMITH)

Nectarinia olivacea sclateri (Vincent)

Vumba (19° 07' S., 32° 45' E.), (19° 08' S., 32° 50' E.)

Jan ♂ 10,8

Feb ♂ 12,1 10,0 12, 12,1 10,0 (11,1)

Mar ♂ 12,3 11,2 12,0 12,5 (12,0)

Apr ♂ mean 12,6 SD 1,09 range 10,8-13,5 n = 5

May ♂ mean 11,3 SD 0,86 range 10,3-12,9 n = 10

Jun ♂ mean 11,2 SD 0,14 range 11,0-11,3 n = 5

Jul ♂ 11,0 11,5 11,3 10,4 (11,1)

Aug ♂ mean 10,7 SD 0,54 range 10,1-11,5 n = 7

Sep ♂ mean 11,3 SD 0,81 range 10,1-13,2 n = 11

Oct ♂ 10,7 10,7 10,1 12,0 (10,9)

Nov ♂ 11,7 10,4 (11,1)

Dec ♂ mean 11,4 SD 0,7 range 10,5-12,4 n = 7

Jan ♀ 8,9

Feb ♀ 9,0 9,3 9,7 (9,3)

Mar ♀ 11,1 9,7 9,8 (10,2)

Apr ♀ mean 10,5 SD 0,79 range 9,6-11,5 n = 6

May ♀ mean 9,8 SD 0,46 range 9,1-10,3 n = 12

Jun ♀ 9,1 9,1 (9,1)

Jul ♀ 9,9 8,9 10,3 (9,7)

Aug ♀ 9,7 7,8 9,3 (8,9)

Sep ♀ mean 10,2 SD 0,74 range 9,1-11,8 n = 13

Oct ♀ 9,1 9,5 (9,3)

Nov ♀ 8,7 10,5 (9,6)

Dec ♀ mean 9,6 SD 0,32 range 9,0-10,0 n = 11

s J ♂ 13,3 13,1 13,5 12,5 (13,1)

s J ♀ mean 10,0 SD 0,54 range 9,5-10,8 n = 5

w J ♂ mean 11,1 SD 0,68 range 10,2-11,8 n = 5

w J ♀ mean 9,6 SD 1,00 range 7,2-11,6 n = 15

Umtali (19° 00' S., 32° 40' E.), Manchester (19° 11' S., 32° 45' E.)

w ♂ mean 11,7 SD 0,89 range 10,9-12,7 n = 12

w ♀ mean 10,3 SD 0,79 range 9,6-11,8 n = 6

w J ♂ mean 10,1 SD 1,34 range 8,9-11,5 n = 7

w J (no sex) 10,6

Pungwe River (18° 25' S., 32° 55' E.)

s (no sex) mean 10,9 SD 0,56 range 10,0-11,5 n = 7

Lusitu forest & Haroni forest (20° 02' S., 33° 01' E.)

s ♂ 12,0

s ♀ 9,0 10,0 9,0 (9,3)

s (no sex) mean 10,9 SD 0,69 range 10,0-12,0 n = 7

s J 10,0 9,0 (9,5)

w ♂ 10,0 10,0 (10,0)

w (no sex) mean 10,9 SD 0,92 range 9,0-13,0 n = 23

Nectarinia olivacea olivacea (Smith)

Ashburton (29° 38' S., 30° 28' E.), Winterskloof, Pietermaritzburg

(29° 37' S., 30° 18' E.)

s ♂ 12,0

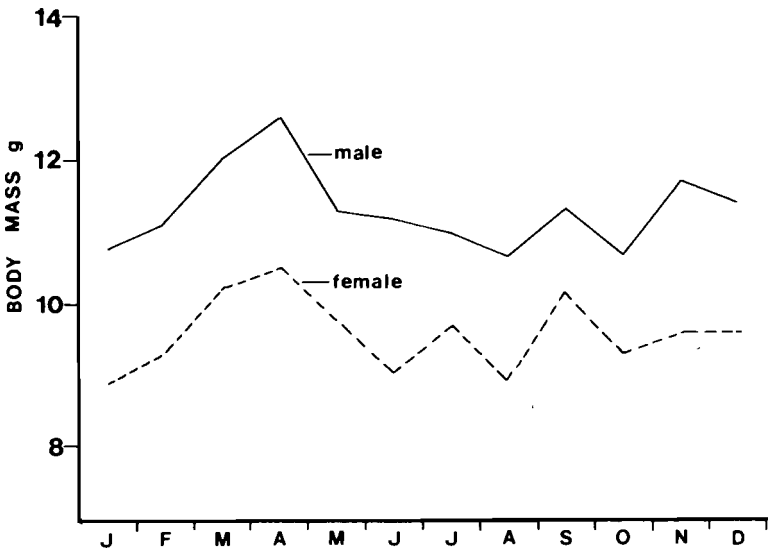
s ♀ 11,0 11,0 (11,0)

s (no sex) 11,6 11,5 (11,6)

w ♂ 13,3 12,8 13,1 11,4 (12,7)

w (no sex) 11,9

FIGURE 2



Monthly variations in the mean body weights of *Nectarinia olivacea sclateri* from the Vumba, Zimbabwe. For ranges and sample sizes see text.

Mtunzini (28° 58' S., 31° 56' E.)

s ♂ 12,2 10,4 12,0 12,0 (11,7)

s ♀ 10,5 10,5 10,5 11,0 (10,6)

s (no sex) mean 11,9 SD 1,00 range 10,2-13,9 n = 35

w ♂ mean 12,6 SD 1,02 range 11,6-14,0 n = 7

w (no sex) mean 12,2 SD 1,26 range 10,2-14,7 n = 40

w J mean 12,5 SD 1,14 range 11,2-14,0 n = 6

Ngoye (28° 50' S., 31° 43' E.)

s ♀ 11,6

***Nectarinia olivacea olivacina* Peters**

No locality

w ♂ 10,6 9,7 10,5 (10,3)

w ♀ mean 8,7 SD 0,59 range 7,8-9,3 n = 5

The large *sclateri* sample from the Vumba shows very little overlap in the ranges of males and females and no overlap in mean weights (fig. 2). There is, however, a remarkable similar monthly variation in weight for the two sexes (fig. 2). It seems as if *olivacina* is the lightest form, while both male and female *olivacea* are heavier than the other two here dealt with.

NECTARINIA SENEGALENSIS (LINNAEUS)

***Nectarinia senegalensis gutturalis* (Linnaeus)**

Mtunzini (28° 58' S., 31° 56' E.)

w J 13,5

Durban (29° 47' S., 31° 02' E.)

w ♂ 14,9

w ♀ 11,7 10,5 (11,1)

“Mkien”, Bulawayo (20° 10' S., 28° 43' E.)

w ♂ mean 15,1 SD 1,11 range 13,6-16,2 n = 5

w J ♂ 17,5 14,2 16,0 16,5 (16,1)

w ♀ 13,7

“Chirawando” farm (17° 37' S., 30° 18' E.)

s J ♂ mean 14,4 SD 0,8 range 13,4-16,0 n = 6

s J ♀ 12,8 11,3 13,4 (12,5)

w ♂ 16,0 15,0 15,0 (15,3)

w ♀ 12,0

Bulawayo (20° 03' S., 28° 32' E.), Matopos Research Station
(20° 22' S., 28° 30' E.)

s ♂ 16,0 14,0 (15,0)

s ♀ 12,0 14,0 13,0 (14,0)

w ♂ 16,0

w (no sex) 12,5 12,5 10,0 12,7 (11,9)

Beatrice (18° 16' S., 30° 57' E.)

s ♂ 14,0

s J ♂ 15,1 16,1 (15,6)

“Muruwati farm,” Mazoe (17° 36' S., 30° 55' E.),

Salisbury (17° 48' S., 30° 50' E.)

s ♂ 15,0 14,5 (14,8)

s ♀ 13,0 15,1 12,4 (13,5)

w ♂ 15,1 14,0 (14,6)

w ♀ 15,3

w J ♂ 14,0

Crowborough (17° 51' S., 31° 56' E.)

s ♂ 16,0

s ♀ 15,0 14,5 (14,8)

s J ♀ 9,0

Umtali (19° 00' S., 32° 40' E.)

s ♂ 14,0

s J ♂ 15,1

w ♂ mean 14,3 SD 0,94 range 12,9-16,4 n = 14

w J ♂ 15,6

Nectarinia senegalensis saturator (Reichenow)

Rundu, Kavango (17° 52' S., 19° 49' E.)

s ♂ 11,5

Frauenstein (22° 24' S., 17° 20' E.)

S J ♂ 15,0

s (no sex) 13,0

Males are heavier than females. The weights of the *saturator* males indicate that this race is smaller than in *gutturalis*, but more data are needed to substantiate this.

NECTARINIA AMETHYSTINA (SHAW)

Nectarinia amethystina kirkii (Shelley)

“Muruwati” farm, Mazoe (17° 36' S., 30° 55' E.), Salisbury (17° 45' S., 31° 08' E.)

s ♂ mean 10,5 SD 1,25 range 9,6-12,0 n = 5

s ♀ mean 9,9 SD 0,99 range 8,3-10,7 n = 7

s J ♂ 11,3

s J ♀ 9,2 8,8 (9,0)

w ♂ mean 10,5 SD 1,25 range 9,5-12,0 n = 5

w ♀ mean 11,2 SD 1,24 range 9,3-12,3 n = 5

w J ♂ 11,1 11,0 11,5 12,0 (11,4)

w J ♀ mean 9,5 SD 0,90 range 8,7-10,2 n = 5

Vumba (19° 07' S., 32° 47' E.), (19° 08' S., 32° 50' E.)

s ♂ 10,7

w ♂ 12,3

w ♀ 9,6 11,7 10,6 (10,6)

w J ♂ mean 10,9 SD 0,64 range 10,0-11,8 n = 9

w J ♀ 10,2 10,0 (10,1)

Crowborough (17° 51' S., 31° 56' E.)

w ♂ 12,0

Sasa Park, Que Que (18° 57' S., 29° 50' E.)

s J♂ 10,4

Umtali (19° 00' S., 32° 40' E.)

w ♂ 11,4 13,0 12,7 11,8 (12,2)

w J♂ 10,8 10,1 (10,5)

Nectarinia amethystina adjuncta Clancey

Melville Koppies Nature Reserve (26° 10' S., 28° 00' E.), Honeydew

(26° 04' S., 28° 04' E.), Melrose Dam (26° 08' S., 28° 04' E.)

w ♂ 16,0 14,0 15,5 14,0 (14,9)

w ♀ 12,5 13,0, (12,8)

w J 12,0

Les Marais (25° 45' S., 28° 07' E.), Univ. of Pretoria Exp. Farm

(25° 45' S., 28° 17' E.), Roodeplaat Dam (25° 38' S., 28° 21' E.),

Fountains, Pretoria (25° 17' S., 28° 07' E.)

s ♂ mean 13,3 SD 1,50 range 11,0-15,0 n = 19

s ♀ mean 13,1 SD 1,05 range 11,5-15,0 n = 10

s J♂ mean 13,3 SD 2,7 range 8,5-15,0 n = 6

s J♀ 13,0

w ♂ 15,0 13,0 13,0 (13,8)

w ♀ 11,0

w J♂ mean 14,1 SD 0,66 range 13,0-14,8 n = 6

w J♀ 12,2 11,8 11,0 7,7 (10,7)

White River (25° 20' S., 31° 00' E.)

s ♂ 14,0 14,0 15,0 (14,3)

s ♀ 13,0 14,0 14,0 14,0 (13,8)

w ♂ mean 15,6 SD 0,8 range 15,0-17,0 n = 6

w J (no sex) 13,5 13,0 12,0 (12,8)

Skeerpoort (25° 50' S., 27° 45' E.), Hekpoort (25° 55' S., 27° 34' E.)

s ♀ 15,0 12,0 (13,5)

w (no sex) 9,0

Mapumula, Swartkop (25° 59' S., 27° 51' E.)

w ♀ 15,0

Barberspan (26° 33' S., 25° 36' E.)

w ♀ 16,9

Nectarinia amethystina amethystina (Shaw)

Ashburton (29° 38' S., 30° 28' E.), Ukulinga, Pietermaritzburg

s ♂ mean 14,3 SD 0,83 range 13,3-15,6 n = 7

s ♀ mean 13,6 SD 1,01 range 12,8-15,5 n = 7

s (no sex) 13,1 13,6 (13,4)

s J♂ 16,6 14,2 16,0 (15,6)

s J♀ 13,8

s J (no sex) 15,0 13,7 14,6 (14,4)

w ♂ 13,5 15,2 (14,4)

w ♀ 13,4 14,1 (13,8)

w (no sex) 14,3 12,8 (13,6)

w J♂ mean 14,9 SD 0,75 range 13,9-16,0 n = 5

w J♀ 13,6 13,6 12,9 (13,4)

w J (no sex) 14,8 13,6 (14,2)

Beaconsfield (29° 00' S., 30° 00' E.)

s ♂ 15,2 14,7 15,4 (15,1)

DHSOB Club, Durban (29° 48' S., 31° 02' E.), Bluff forest (29° 05' S., 31° 00' E.)

s (no sex) 13,7

w (no sex) 13,5

Umtentweni River mouth (30° 42' S., 30° 27' E.)

s J♂ 15,8

s ♀ 14,9

Donga Dell, Nooitgedacht (28° 26' S., 27° 54' E.)

s ♂ 16,0 14,0 15,0 (15,0)

s ♀ 12,0 12,0 (12,0)

s J♂ 16,0 15,0 13,5 (14,8)

s J (no sex) 15,0 13,0 14,0 (14,0)

Kei Road (27° 35' S., 32° 40' E.)

s ♀ 15,0

s J♂ 16,0

J ♀ 13,0

Solomon Road, Somerset West (34° 05' S., 18° 51' E.)

w ♀ 11,4

Nectarinia amethystina deminuta (Cabanis)

Rundu, Kavango (17° 52' S., 19° 49' E.)

s ♂ 12,0

No locality (Anon. 1968)

No date ♂ 11,6

Males are marginally heavier than females in all races listed, except in the winter sample of *kirkii* from Mazoe. Overlaps in the ranges of the sexes are usually so large that bigger samples might show that there is actually no difference between them. The small sample of *deminuta* indicates that this form is smaller than the others, but more data are needed to substantiate this.

ANTHREPTES COLLARIS SWAINSON

Anthreptes collaris collaris (Vieillot)

Mtunzini (28° 58' S., 31° 56' E.)

s ♂ mean 7,8 SD 0,47 range 7,3-8,5 n = 5

s ♀ 7,0 6,5 7,5 7,0 (7,0)

s ♂ 9,1 7,3 7,5 8,0 (8,0)

s ♀ 7,3 6,7 (7,0)

w J ♂ 8,1

w J ♀ 6,9

Karkloof (29° 30' S., 30° 30' E.), (29° 17' S., 30° 18' E.), Winterskloof
(29° 37' S., 30° 18' E.), Ferncliffe (29° 33' S., 30° 20' E.), Ashburton
Pietermaritzburg (29° 38' S., 30° 28' E.)

s ♂ 9,0 8,3 (8,7)

s ♀ 8,1 8,8 7,2 (8,0)

w ♂ mean 7,4 SD 0,73 range 6,8-8,5 n = 6

w ♀ 7,6 7,6 (7,6)

Ngoye & Nkandhla (28° 50' S., 31° 43' E.) (28° 45' S., 31° 07' E.)

s ♂ 8,0 8,3 7,5 7,9 (7,9)

s ♀ 8,5 6,6 7,8 (7,6)

White River (25° 20' S., 31° 00' E.)

w ♂ 7,0 8,0 (7,5)

w ♀ 7,0

Anthreptes collaris zambesianus (Shelley)

Massinga, Mozambique (23° 20' S., 35° 25' E.)

w ♂ mean 7,1 SD 0,45 range 6,6-8,1 n = 20

w ♀ mean 6,6 SD 0,54 range 5,8-7,7 n = 16

Muanza, Mozambique (18° 50' S., 34° 50' E.)

w ♀ 6,3

Pafuri (22° 27' S., 31° 21' E.)

s ♂ 8,0

s ♀ 7,0 6,5 (6,8)

Anthreptes collaris patersonae Irwin

Umtali (19° 00' S., 32° 40' E.)

w ♂ 8,3

“Haroni” farm (22° 02' S., 32° 01' E.)

w ♂ 8,0 8,0 8,0 (8,0)

w ♀ 7,0 7,0 7,0 (7,0)

Chipinga (20° 16' S., 32° 20' E.)

w ♂ 7,9 7,5 (7,7)

w ♀ 7,8

Pungwe River (18° 25' S., 32° 55' E.)

s ♂ 8,0

s ♀ 7,0 7,5 (7,3)

Vumba (19° 07' S., 32° 45' E.)

s ♂ mean 8,8 SD 0,54 range 7,8-9,4 n = 6

s ♀ 8,5

s J 6,4

w ♂ 8,9
 w ♀ 7,8 7,6 (7,7)
 w J 8,0

***Anthreptes collaris chobiensis* (Roberts)**

Andara, Okavango River (18° 04' S., 21° 29' E.)

s ♂ mean 7,4 SD 0,68 range 6,3-8,0 n = 5

Males are on average about 1,0g heavier than females in all forms. The south-eastern lowland subspecies, *zambesianus*, is the smallest but no definite pattern is evident.

ANTHREPTES LONGUEMAREI (LESSON)

***Anthreptes longuemarei nyassae* Neumann**

Vumba (19° 10' S., 32° 45' E.)

s ♂ 12,0 12,6 12,0 (12,2)

s Jo 12,6

w ♀ 12,1

Mazoe (17° 35' S., 30° 55' E.)

s ♂ 12,0

“Muruwati” farm (17° 36' S., 30° 55' E.)

s ♀ 13,4 12,4 12,8 (12,9)

Females are marginally heavier than males but a larger sample might show otherwise.

No data are available for the following sunbird taxa:

Nectarinia famosa major Roberts

Nectarinia chalybea albilateralis Winterbottom

Nectarinia manoensis amicornum Clancey

Nectarinia olivacea alfredi (Vincent)

Nectarinia shelleyi shelleyi (Alexander)

Anthreptes reichenowi reichenowi Gunning

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