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WEIGHTS OF SOUTHERN AFRICAN RAPTORS AND OWLS

by

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Few weights of African raptors and owls have been published. Most of the literature either gives one or two weights for a few species, or provides inadequate statements about weight (such as the range, but without mean, SD or sample size). This paper presents 2 353 weights for 55 species. Complete lists of all the raw data are available from JMM.

The majority (*c.* 90%) of weights were obtained from birds caught for ringing. The weights of zoo and falconer's birds, museum specimens, and birds found dead make up the rest of the data. Abnormalities (*e.g.* starved and dehydrated birds) are not included. Most specimens were weighed on Pesola spring or triple-beam balances. Weights are accurate to the nearest gram for small specimens, and for larger ones to the nearest five, ten or 100 grams.

Weights have been listed individually for those species, subspecies or sexes with less than ten measurements. Where more than ten values are available, the data are described in terms of the mean, SD, range and sample size.

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Few birds of known sex were weighed. Sex was determined either by dissection or behavioural observation (copulation, etc.). Some weights from museum specimens may have been assigned to the wrong sex. These data have been listed anyway as it is difficult to judge whether the sex determination was right or wrong.

The lack of data on sex is a major shortcoming of most of the data. We have chosen to analyse the data for each species as a whole because, (*a*) even in highly dimorphic species it would be dangerous to speculate and assign a sex to each weight, and (*b*) at least something can now be said until better data are published. For some species a frequency curve of the weights suggests the extent of size dimorphism; histograms of these are presented below. A frequency histogram of 700 *Elanus c.caeruleus* weights does not suggest dimorphism, yet the mean weights from known sexes are significantly different ($p<0{,}005$). Even species with unimodal weight distributions may show some size dimorphism.

Body condition and the contents of the crop and stomach significantly influence weight. These factors may override sexual differences; a male in good condition with a full crop will often be heavier than a hungry female in poor condition. Reliable estimates of crop and stomach contents would be needed before corrections could be made — we have not attempted to make these estimates. Age has not been taken into account but for the omission of weights of nestlings and recently fledged chicks. Where the subspecies is known, the data are given accordingly. For most species, there is seldom more than one recognised race in southern Africa. Further geographic separations have not been made. About 80% of the weights come from the Transvaal, and *c.* 15% from South West Africa (Namibia). The weights of *Falco ardosiaceus* and *Otus senegalensis* from Angola, and one weight of *Kaupifalco monogrammicus* and two of *Falco dickinsoni* from Zambia are the only ones from outside southern Africa.

None of the data have previously been published but for some weights of *Micronisus g.gabar* (Kemp and Snelling, 1973, *Ostrich* 44: 154 - 162) and *Elanus c.caeruleus* (quoted in Tarboton, 1977, *Zool. Afr.* 12: 252-255, and 1978, *Condor* 80: 88 - 91).

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SAGITTARIIDAE

Sagittarius serpentarius Secretary Bird
4200, 4270, 3920, 3960, 4220, 3740

ACCIPITRIDAE

Milvus migrans subsp. Black Kite
mean=661,8; SD=101,1; range 502 - 787; n=13

Milvus migrans parasitus Yellowbilled Kite
709, 619, 765, 625, 584 ♀

Elanus c.caeruleus Blackshouldered Kite
mean=242,7; SD=19,4; range 182 - 300; n=700
♂♂ mean=237,0; SD=15,9; range 200 - 270; n=28
♀♀ mean=258,5; SD=20,6; range 219 - 293; n=27

Pernis a.apivorus Honey Buzzard
675, 815, 800, 700

Aquila verreauxii Black Eagle
3800, 4300, 3100 ♀, 3700 ♀

Aquila r.rapax Tawny Eagle
mean=2351,9; SD=352,8; range 1696 - 3100; n=27

Aquila rapax orientalis Steppe Eagle
3100, 2300, 3300, 2523

Aquila p.pomarina Lesser Spotted Eagle
1256, 1775, 1835, 1340, 1430, 1755, 1408

Aquila wahlbergi Wahlberg's Eagle
mean=1147,0; SD=168,4; range 670 - 1400; n=42

Hieraaetus p.pennatus Booted Eagle
965, 1125, 1330, 582

Hieraaetus fasciatus spilogaster Hawk-Eagle
mean=1420,6; SD=162,1; range 1150 - 1750; n=56 (fig. 1),
1300 ♂, 1640 ♀

Hieraaetus ayresi Ayres' Eagle
900, 1000

Lophaetus occipitalis Longcrested Eagle
1085

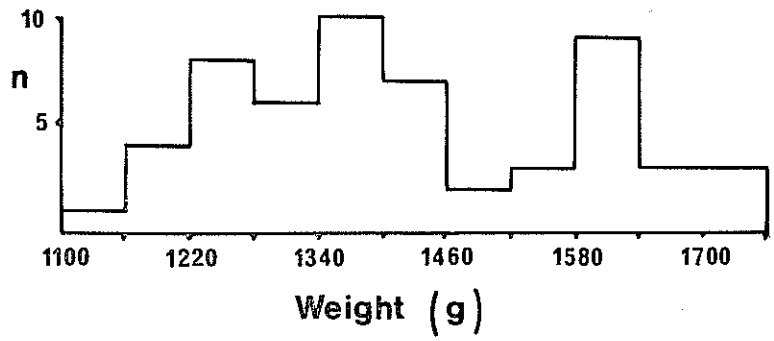

Fig. 1. Distribution of 56 weights of *Hieraaetus fasciatus spilogaster*.

Polemaetus bellicosus Martial Eagle
mean=3965,2; SD=791,2; range 3012 - 5657; n=17
5100 ♂

Kaupifalco m.monogrammicus Lizard Buzzard
mean=294,2; SD=37,1; range 223 - 388; n=77
275 ♂, 374 ♀, 284 ♀, 248 ♀

Circaetus cinereus Brown Snake Eagle
mean=2047,5; SD=239,9; range 1540 - 2465; n=26

Circaetus gallicus pectoralis Blackbreasted Snake Eagle
mean=1502,3; SD=195,2; range 1178 - 2260; n=46

Circaetus fasciolatus Southern Banded Snake Eagle (Fasciated Snake Eagle) 908 ♂

Terathopius ecaudatus Bateleur
1820, 2550, 2316, 2282, 1883, 2080, 2471, 2250 ♂

Buteo buteo vulpinus Steppe Buzzard
mean=709,2; SD=98,7; range 453 - 911; n=108 (fig. 2)

Buteo rufofuscus Jackal Buzzard
mean=1063,9; SD=164,7; range 790 - 1370; n=55 (fig. 3)

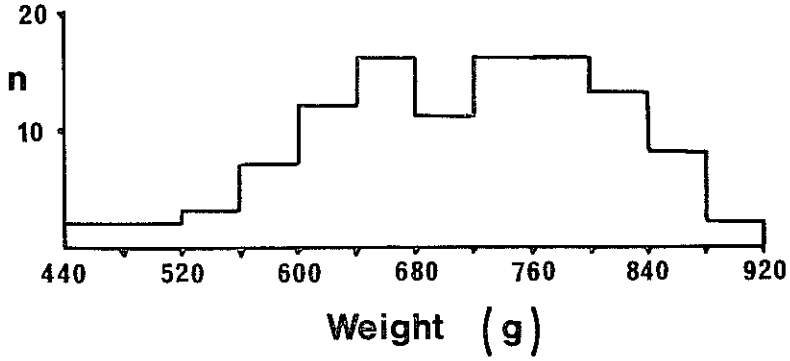

Fig. 2. Distribution of 108 weights of *Buteo buteo vulpinus*.

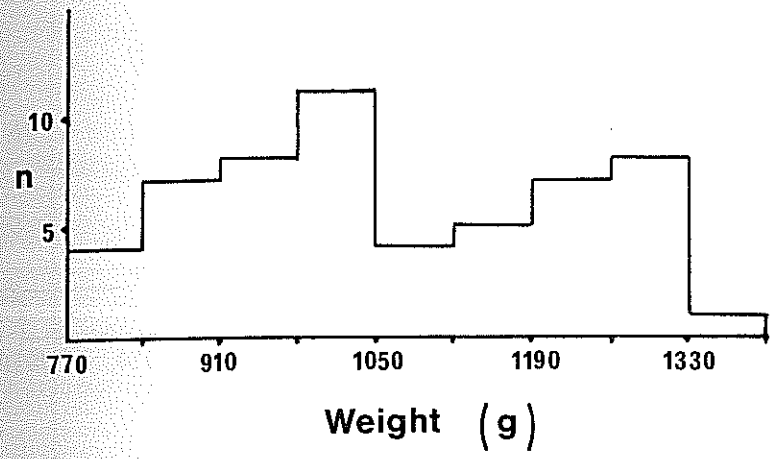

Fig. 3. Distribution of 55 weights of *Buteo r. rufofuscus*.

Buteo a.augur Augur Buzzard
930, 1130, 853, 1000, 953, 1100

Buteo t.tachardus Mountain Buzzard
700

Accipiter r.rufiventris Redbreasted Sparrowhawk
215, 180

Accipiter ovampensis Ovambo Sparrowhawk
mean=194,5; SD=62,9; range 119 - 305; n=16 (fig. 4)

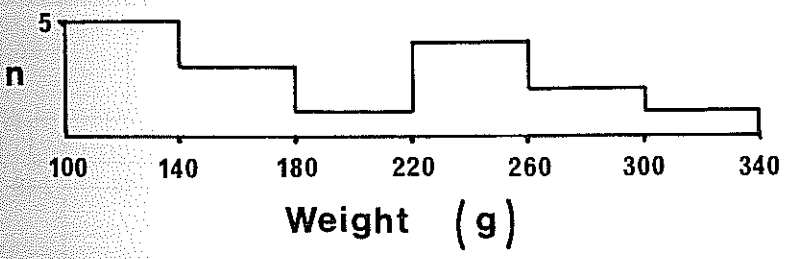

Fig. 4. Distribution of 16 weights of *Accipiter ovampensis*.

Accipiter m.minullus Little Sparrowhawk
105, 75, 82, 77 ♂

Accipiter t.tachiro African Goshawk
mean=341,7; SD=75,9; range 230 - 510; n=19
230 ♂, 337 ♀, 403 ♀, 345 ♀

Accipiter badius polyzonoides Little Banded Goshawk
mean=123,7; SD=20,2; range 75 - 158; n=56

Accipiter m.melanoleucus Black Sparrowhawk
mean=699,3; SD=172,3; range 476 - 980; n=19 (fig. 5)

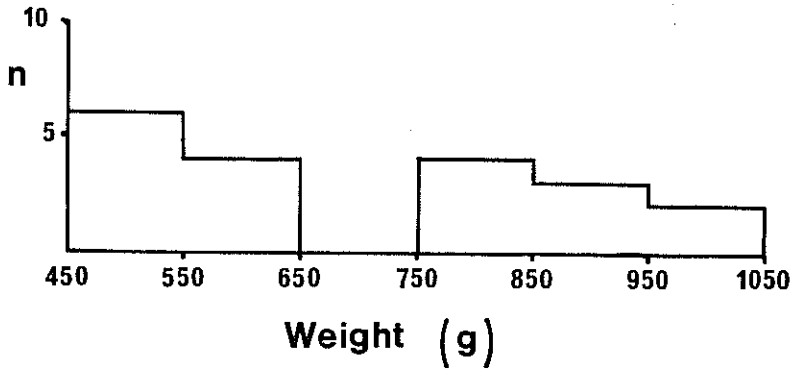

Fig. 5. Distribution of 19 weights of *Accipiter m. melanoleucus.*

Micronisus g.gabar Gabar Goshawk
mean=154,2; SD=37,5; range 95 - 217; n=30 (fig. 6)

Melierax canorus subsp. Pale Chanting Goshawk
mean=745,8; SD=114,1; range 493 - 1000; n=245 (fig. 7)

Melierax metabates mechowi Dark Chanting Goshawk
mean=658,2; SD=79,4; range 478 - 815; n=69 (fig. 8)

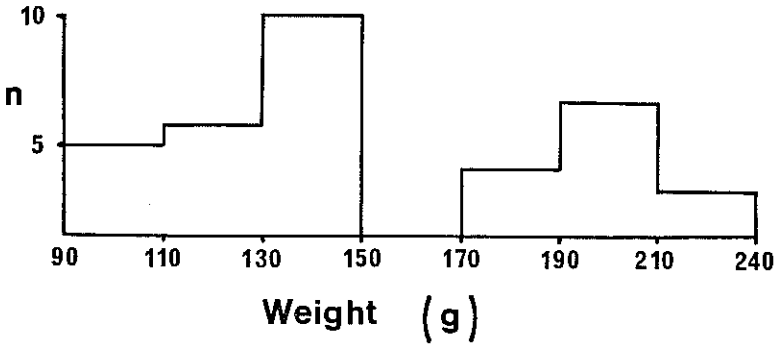

Fig. 6. Distribution of 30 weights of *Micronisus g. gabar.*

Circus ranivorus African Marsh Harrier
575, 405, 590, 413, 487, 510

Circus pygargus Montagu's Harrier
359

Polyboroides typus Gymnogene
942

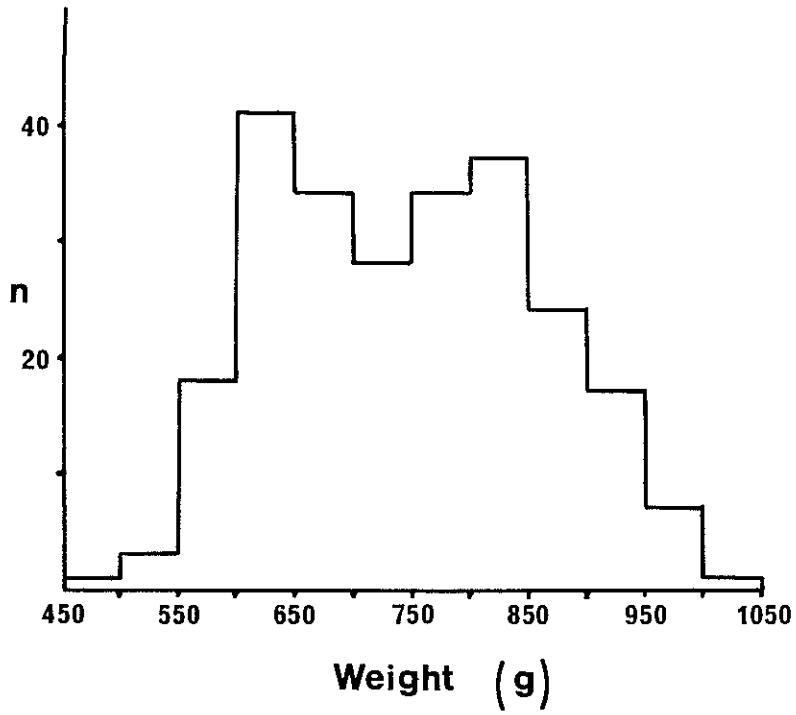

Fig. 7. Distribution of 245 weights of *Melierax canorus* subsp.

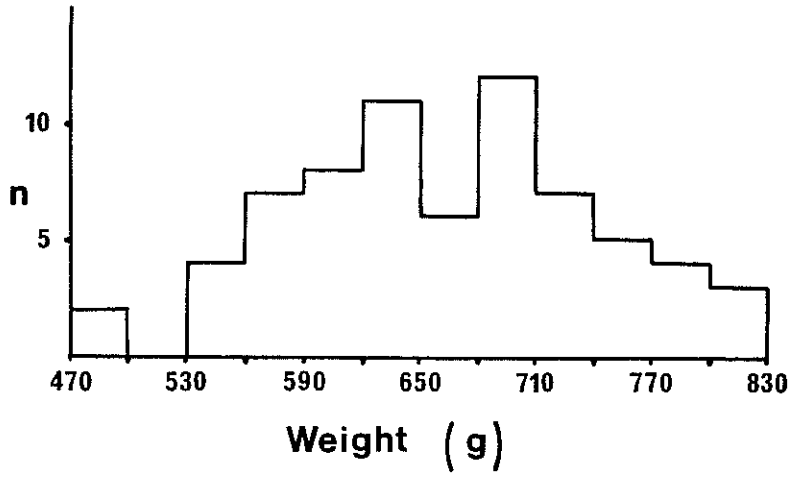

Fig. 8. Distribution of 69 weights of *Melierax metabates mechowi*.

FALCONIDAE

Falco b.biarmicus Lanner

mean=587,1; SD=106,5; range 430 - 910; n=48 (fig. 9)

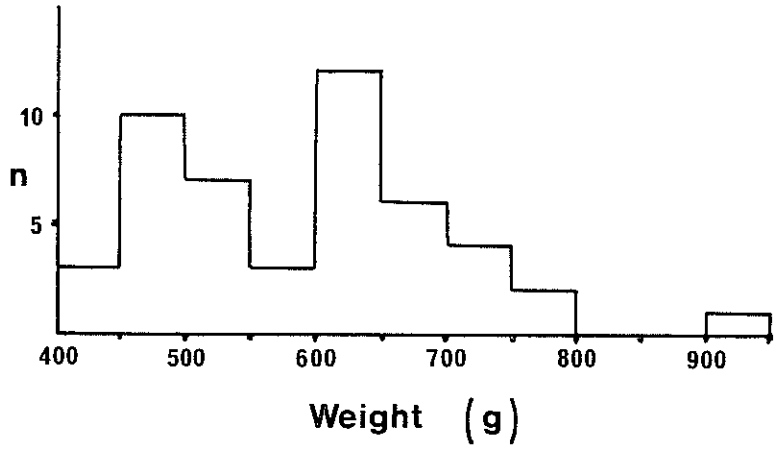

Fig. 9. Distribution of 48 weights of *Falco b. biarmicus*.

Falco chicquera subsp. Rednecked Falcon
255, 178, 248, 204, 197, 190, 139 ♂, 160 ♂, 155 ♂, 305 ♀

Falco vespertinus Western Redfooted Falcon
133 ♂

Falco amurensis Eastern Redfooted Falcon
130 ♂, 145 ♀, 153 ♀, 127 ♀

Falco tinnunculus rupicolus Rock Kestrel
mean=192,3; SD=23,3; range 145 - 247; n=99

Falco r.rupicoloides Greater Kestrel
mean=261,1; SD=24,8; range 181 - 344; n=333
218 ♂, 222 ♂, 209 ♂, 275 ♂, 275 ♀, 270 ♀

Falco naumanni subsp. Lesser Kestrel
♂♂ 130, 139, 116, 162, 140, 142
♀♀ 148, 135, 130, 109, 146

Falco ardosiaceus Grey Kestrel
♂♂ 230, 250, 220, 215, 245
♀♀ 275, 300, 195, 240, 232

Falco dickinsoni Dickinson's Kestrel
mean=209,9; SD=22,1; range 167 - 246; n=37
200 ♂, 169 ♂, 207 ♂, 207 ♀

Polihierax s.semitorquatus Pygmy Falcon
♀♀ mean=59,6; SD=4,2; range 54 - 67; n=12
64 ♂, 59 ♂

TYTONIDAE

Tyto alba affinis Barn Owl
mean=345,6; SD=21,7; range 295 - 381; n=16
329 ♂, 363 ♀

Tyto c.capensis Grass Owl
520, 422, 393, 406, 500, 378, 355, 380

STRIGIDAE

Strix w.woodfordii Wood Owl
340 ♂, 250 ♂, 297 ♀

Asio c.capensis Marsh Owl
331, 355, 243, 285, 334, 307, 256, 350, 329

Otus senegalensis subsp. Scops Owl
46 ♂

Otus leucotis granti Whitefaced Owl
250

Glaucidium perlatum subsp. Pearlspotted Owl
mean=75,7; SD=4,2; range 68-83; n=16

Glaucidium capense robertsi Barred Owl
132 ♂, 117 ♂, 131 ♀, 139 ♀, 128 ♀

Bubo capensis subsp. Cape Eagle Owl
945, 905, 960, 1360, 1240, 1440

Bubo a.africanus Spotted Eagle Owl
mean=688,1; SD=80,2; range 487 - 850; n=30

Bubo lacteus Giant Eagle Owl
1960, 1615, 3115.

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