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EYE SIZE IN *OENA* AND *TURTUR*

by C.H. Fry

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It has not been remarked previously that, among ground doves in the closely allied genera *Oena* and *Turtur*, eye size varies with specific habitat. Fig. 1 shows profiles or near-profiles, drawn from photographs of living birds, of *Oena capensis* (dry savannas), *Turtur afer* (evergreen thickets, shady woods in savanna), *T. tympanistria* (forest edges, gallery and secondary forests) and *T. brehmeri* (depths of tropical rain forest) (habitats from Urban, Fry & Keith in prep.). Profiles have been enlarged differentially so that head-lengths, as shown, are the same; an increase in relative size of the eye from savanna to forest species is readily apparent. Fig. 2 shows profiles of British Museum (Natural History) skulls 1869.4.14.2 (*O. capensis*), 1869.3.5.4 (*T. afer*), 1975.62.2 (*T. tympanistria*) and 1977.8.2 (*T. brehmeri*). Measurements from these skulls are given in Table 1. Specific size and skull size increase from *O. capensis* or *T. brehmeri* (columns 1-2). Eye volume (6), calculated from the mean of three orbital diametric measures (3-5), is nearly three times as great in *T. brehmeri* as in *O. capensis*. Skull volumes have not been measured, but an indication of the relative skull sizes is given by the product of three cranial parameters (7-9). Ratio of eye volume to estimated skull size (10) is low in *O. capensis* (0.15), middling in *T. afer* and *T. tympanistria* (0.18) and high in *T. brehmeri* (0.21).

All four of these doves are fully diurnal. Assuming that vision is a sensory modality of comparable importance in each of them, a progressive increase in specific eye size from brightly to poorly illuminated habitats is an adaptive response which is only to be expected.

## ACKNOWLEDGEMENTS

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## REFERENCE

URBAN, E.K., FRY, C.H. & KEITH, S. (in prep.) The Birds of Africa. Vol. III. Academic Press, London.

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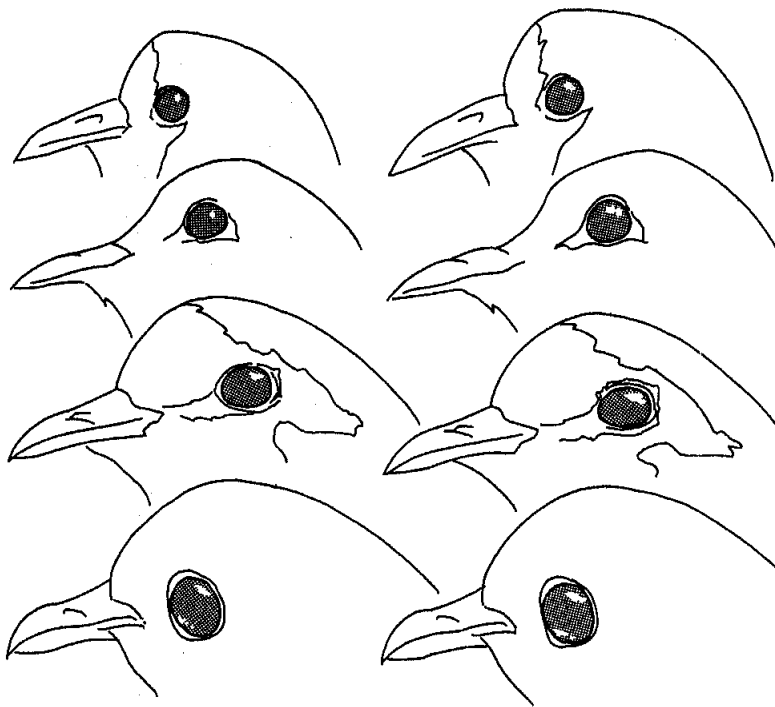


Figure 1 From top to foot, near-profiles of *Oena capensis*, *Turtur afer*, *T. tympanistris* and *T. brehmeri*, showing different eye sizes. Left, approximately natural size; right, redrawn to same absolute size. Drawn from enlarged photographs.

Table 1 Skull (mm) and other measures of *Oena* and *Turtur* species

♂ Specific weight (g)	Skull length (2)	Orbit diameters*			Estimated eye vol. (mm <sup>3</sup> ) (6)	Length (7)	Cranium		
		(3)	(4)	(5)			depth (8)	width (9)	
<i>O. capensis</i>	39	30.0	9.6	9.4	454	18.7	12.5	12.9	0.151
<i>T. afer</i>	64	33.8	11.0	11.6	743	21.6	13.6	13.7	0.185
<i>T. tympanistreria</i>	70	37.4	11.7	12.0	874	22.9	14.6	14.2	0.184
<i>T. brehmeri</i>	133	41.3	13.4	13.3	1277	21.5	17.1	16.4	0.212

$$\frac{(5)}{\cancel{(5)} \times (7) \times (8)} \times \frac{(6)}{\cancel{(7)} \times (8) \times (9)}$$

\* (3) is horizontal diameter, (4) at 120° and (5) at 240° to horizontal.



Figure 2 Skulls of (left to right) *Oena capensis*, *Turtur afer*, *T. tympanistreria* and *T. brehmeri*, all 0.83 (5/6th) nat. size, showing relative orbit sizes (see text).