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SEX RATIOS OF STEENBOK *RAPHICERUS CAMPESTRIS* THUNBERG SEEN IN TWO SOUTHERN AFRICAN NATIONAL PARKS

by

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Abstract—Sex ratios of steenbok observed in Wankie National Park, Rhodesia, and Kruger National Park, South Africa, are analysed. A total of 74 animals was sexed (33 ♂♂ and 41 ♀♀). These data are compared with other available data on steenbok sex ratios.

Van Bruggen (1964) has commented on the apparent preponderance of males in the steenbok population in the Kruger National Park. Out of a total of 67 steenbok that were seen while driving in the park, 47 were males, 10 were females, and 10 were unsexed. Males and females composed 82,5 % and 17,5 % respectively of the total number of animals sexed (Ratio 4,7 ♂♂ : 1 ♀).

This unusual preponderance of males inspired the writer to note the sexes of steenbok seen during short visits to the Kruger National Park, Republic of South Africa, and Wankie National Park, Rhodesia. Observations were made from a motor car (two observers) travelling at 25–35 km/h, during July 1968 and October 1969 in Wankie, and during September1970 in the Kruger National Park. Details of steenbok seen are given in Tables 1 and 2.

In Wankie National Park 38 steenbok were seen during two visits to the Main Camp area, lasting four days in all. In the Kruger National Park 40 steenbok were recorded on six days. The composition of groups seen is shown in Table 3.

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Table 1

Details of steenbok seen in Wankie National Park

Date	*Time*	*Locality*	*Composition*	*Numbers* ♂♂	♀♀	?
6. 7.68	am	Main Camp	♂. ♂. ♀.	2	1	
	pm	Main Camp—	♂. ♂. 2?.			
		Ngweshla	♀. ♀. ♀. ♀.			
			♂♀. ♂♀. 1?	4	6	3
7. 7.68	am	Main Camp	♂. ♂. ♀.	2	1	
2.10.69	pm	Main Camp	♀. ♂♂. ♂♀.			
			♂. ♂. ♂♀.	6	3	
3.10.69	am	Main Camp—				
		Kennedy	♂♀. ♀. ♂♀.	2	3	
	pm	Main Camp	♀. ♀. ♀. ♂♀.	1	4	

Table 2

Details of steenbok seen in the Kruger National Park

Date	*Time*	*Locality*	*Composition*	*Numbers* ♂♂	♀♀	?
11.9.70	pm	Crocodile Bridge—				
		Lower Sabie	♀. ♀. 1?	0	2	1
12.9.70	am	Lower Sabie	♂. ♀. ♂. ♂.			
			♀. ♂♀. ♂♀.			
			♀.	5	5	
14.9.70	pm	Skukuza	♂.	1	0	
15.9.70	am	Skukuza	♂. ♀.	1	1	
	am	Skukuza —	♀. ♀.			
		Pretoriuskop	♂♂♀. ♂. ♀.	3	4	
	pm	Pretoriuskop —				
		Hippo Pool	♀. ♂.	1	1	
16.9.70	am	Pretoriuskop	♂. ♀. ♀.			
			♀.	1	3	
17.9.70	am	Pretoriuskop	♂♀. ♂♀.			
			♀. ♀.	2	4	
	pm	Pretoriuskop	♂. ♀. ♂.			
			♀. ♀.	2	3	
				16	23	1

Table 3

Composition of steenbok groups recorded in Wankie National Park and Kruger National Park

	Singles ♂♂	♀♀	*Pairs*	*Other*
Wankie	9	12	6	♂♂
Kruger	10	18	4	♂♂♀
TOTAL	19	30	10	2

30 % of the groups recorded were single males, 48 % were single females, 16 % were pairs, and the two other combinations accounted for 3 %. The two males that were recorded together in Wankie were grazing on short grass, within about 10 m of each other. No females were seen in the vicinity and each animal appeared to be quite tolerant of the other. In the Kruger National Park, however, one male was seen behaving aggressively towards another. A female was seen feeding beside the road, while one steenbok male was engaged in chasing another male from the area.

From these data we are able to deduce the following:

1. *Wankie National Park*

Total sexed		=	35
Males		=	17 (48,5 %)
Females		=	18 (51,5 %)
Ratio	1	:	1,06

2. *Kruger National Park*

Total sexed		=	39
Males		=	16 (42 %)
Females		=	23 (58 %)
Ratio	1	:	1,4

3. *Combined totals*

Total sexed		=	74
Males		=	33 (44,5 %)
Females		=	41 (55,5 %)
Ratio	1	:	1,25

Assuming that these samples were taken from populations with sex ratios of 1 : 1, chi-square tests were done to test the significance of departure from this ratio. The male : female ratios in Wankie and the Kruger National Park were not significantly different from 1 : 1 (x^2 = 0,0285 and 1,256 respectively). For the total number sexed there is not a significant difference from parity (x^2 = 0,865).

Van Bruggen (1964) observed a total of 67 steenbok (47 ♂♂, 10 ♀♀, 10 unsexed). These figures are statistically different from a 1 : 1 ratio (x^2 = 15,5 for all sexed animals). Even if all unsexed animals are assumed to have been female, the ratio is still highly significantly different from parity (x^2 = 10,9). Departure from 1 : 1 is significant at 5 % level if x^2 exceeds 3,841 (Snedecor, 1956).

Van Bruggen (*op cit*) puts forward some possible reasons for the 4,7 : 1 ratio of his sample. One suggestion is that a behavioural difference between the sexes exists, as all the single females in Van Bruggen's sample were recorded in the morning. An analysis of my morning and afternoon observations however, indicates sex ratios which do not differ greatly from the two samples (see Table 4).

Table 4

Sex ratio of steenbok seen during mornings and afternoons in Wankie National Park and Kruger National Park

	Mornings			*Afternoons*		
	♂♂	♀♀	*Ratio*	♂♂	♀♀	*Ratio*
Wankie	6	5	1, 2 : 1	11	13	1 : 1, 2
Kruger	12	17	1 : 1, 4	4	6	1 : 1, 5
Total	18	22	1 : 1, 2	15	19	1 : 1, 3

Mentis (personal communication) has summarised information pertinent to steenbok sex ratios. These details (given in Table 5) indicate a non-significant departure from a 1 : 1 sex ratio in adult animals shot in Zululand (x^2 = 0,79), adults sexed in Botswana (x^2 = 0,42) and adults sexed in Rhodesia (x^2 = 0,77). In the case of foetuses sexed, the 1,9 : 1 ratio is significantly different from parity (x^2 = 10). The samples of recorded births are too small for statistical analysis.

Table 5

Sex ratios of steenbck
(Mentis, unpublished mss.)

Author	*Material*	♂♂	♀♀	*Ratio* ♂ ♀
Mentis (1970)	Shot in Zululand	154	170	1 : 1, 1
Child (1968)	Sexed in the field, Botswana	23	25	1 : 1, 13
Dasmann and Mossman (1962)	Sexed in the field, Rhodesia	120	134	1 : 1, 12
Wilson and Kerr (1969)	Foetuses	67	35	1, 9 : 1
Bigalke (1963)	Births	6	0	
Chalmers (1963)	Births	1	2	1 : 2

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REFERENCES

BIGALKE, R. C. 1963. A note on reproduction in the steenbok (*Raphicerus campestris*) Thunberg. *Ann. Cape Prov. Mus.* 3: 64–67.

CHALMERS, G. 1963. Breeding data: steenberg (*Raphicerus campestris* Thunberg). *E. Afr. Wildl. J.* 1: 121–122.

CHILD, G. 1968. An ecological survey of Northeastern Botswana. Rome: FAO

DASMANN, R. F. and A. S. MOSSMAN. 1962. Abundance and population structure of wild ungulates in some areas of S. Rhodesia. *J. Wildl. Mgmt* 26: 262–268.

MENTIS, M. T. 1970. Estimates of natural biomass of large herbivores in the Umfolozi Game Reserve area. *Mammalia* 34: 363–393.

MENTIS, M. T. *No date.* A review of some life history features pertinent to the productivity of the large herbivores of Africa. Unpublished manuscript.

SNEDECOR, G. W. 1956. *Statistical methods.* 5th ed. Ames: Iowa State University Press.

VAN BRUGGEN, A. C. 1964. A note on *Raphicerus campestris* (Thunberg, 1811): a challenge to observers. *Koedoe* 7: 94–98.