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A NOTE ON THE SEX RATIO OF STEENBOK *RAPHICERUS CAMPESTRIS* IN THE KALAHARI GEMSBOK NATIONAL PARK

by

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Abstract—Field observations on steenbok in the Kalahari Gemsbok National Park reveal a 1 : 1 sex ratio. This is corroborated by observations in the Kruger National Park and by a survey of steenbok material in two South African museums.

Introduction

In 1964 Van Bruggen published a paper on his observations on steenbok in the Kruger National Park. His data reveal a preponderance of males over females to the extent of 4,7 ♂♂ : 1 ♀.

He concludes with an appeal for more observations and states: "It should be kept in mind that there is always a likelihood that this problem does not exist as such and can be solved simply by more observations, which will rectify the figures".

Rowe-Rowe (in this issue) made observations on the sex ratios of steenbok in the Kruger National Park and in the Wankie National Park in Rhodesia. He concludes that there is no significant departure from a 1 ♂ : 1 ♀ ratio in the steenbok observed in these two national parks.

In order to extend the investigation to a different population I recorded all the steenbok sighted during a visit to the Kalahari Gemsbok National Park during the period 6 to 13 January 1971.

Material and methods

Observations were made in the extreme northern part of the park in open, undulating dune veld. None of the sightings in the Nossob River were recorded. The steenbok population in this national park probably represents the race *Raphicerus campestris steinhardti* (Ansell, 1968).

Results and discussion

A total of 69 steenbok was recorded. Only two pairs were observed and one group of three, consisting of a male, female and an unsexed individual, probably juvenile. All the other sightings were of single animals.

Due to the wariness of the steenbok, which usually dashed off when the vehicle was still at quite a distance, only 48 of the 69 steenbok could be

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positively sexed. This represented a sample of 18 ♂♂ and 30 ♀♀, giving a ratio of 1 ♂ : 1,7 ♀♀. It was assumed that the population has a 1 : 1 sex ratio and a chi-square test was done to determine significance of departure from this ratio. The x^2-test was based on a formula by Ostle (1964) for binomial data. It was concluded that the male : female ratio in this population does not depart significantly from the assumed 1 : 1 ratio ($x^2 = 2,52$). For a significant departure at the 5 % level from the 1 : 1 sex ratio in this case, the x^2 values would have to be exceed 3,84 (Snedecor and Cochran, 1967).

Table 1

Sightings of steenbok, 6 to 13 January 1971, in the Kalahari Gemsbok National Park (a.m.)

Date	♂♂	♀♀	*Unsexed*	*Total*
6.1.71	2	2	1	5
7.1.71	2	1	1	4
8.1.71	–	3	2	5
9.1.71	1	2	2	5
10.1.71	3	3	2	8
11.1.71	–	2	2	4
12.1.71	–	2	1	3
13.1.71	1	1	3	5
Total	9	16	14	39

Differential counts for morning and afternoon sightings (*vide* Table 1 and Table 2) revealed ratios of 1 ♂ : 1,8 ♀♀ (a.m.) and 1 ♂ : 1,6 ♀♀ (p.m.). However, neither of these ratios represents a significant departure from the assumed sex ratio for the population, the x^2 values being 1,44 and 0,696 respectively.

After the publication of Van Bruggen's note, the research staff of the Kruger National Park investigated the sex ratio of the steenbok population in the park. In a special survey a total of 284 steenbok was recorded, representing a sample of 137 ♂♂ and 147 ♀♀, giving a ratio of 1 ♂ : 1,07 ♀. During a subsequent general wildlife census in which a differential count was made of all large mammal species, a total of 105 steenbok was recorded: 50 ♂♂ and 55 ♀♀, giving a ratio of 1 ♂ : 1,1 ♀.

Table 2

Sightings of steenbok, 6 to 13 January 1971, in the Kalahari Gemsbok National Park (p.m.)

Date	♂♂	♀♀	*Unsexed*	*Total*
6.1.71	1	2	3	6
7.1.71	1	1	–	2
8.1.71	2	2	1	5
9.1.71	3	2	1	6
10.1.71	–	3	–	3
11.1.71	–	2	2	4
12.1.71	1	1	–	2
13.1.71	1	1	–	2
Total	9	14	7	30

In 1970 all the steenbok in the Roan Antelope enclosure in the northern part of the park (Joubert, 1970) were destroyed after an outbreak of anthrax had occurred. Thirty steenbok were destroyed: 15 ♂♂ and 15 ♀♀.

Chi-square tests were done on these data and it was concluded that there was no significant departure from the assumed 1 : 1 sex ratio (*vide* Table 3).

Table 3

Steenbok sex ratios, Kruger National Park

	♂♂	♀♀	*Sex ratio*	x^2
Special survey	137	147	1 ♂ : 1,07 ♀♀	0,28
General census... ...	50	55	1 ♂ : 1,1 ♀♀	0,16
Roan antelope enclosure	15	15	1 ♂ : 1 ♀	–

The number of male and female steenbok in two South African museums was also examined (*vide* Table 4). Museum collections of larger mammals do not necessarily represent unbiased samples of populations as they were

usually assembled over decades by collecting expeditions, donations by trophy hunters, etc. One could therefore assume that there would be a preponderance of males, at least as far as the antelope are concerned. However in neither case did the sex ratio in the museum collections depart significantly from the assumed 1 : 1 ratio in steenbok populations.

Table 4

Steenbok specimens in museum collections

	♂♂	♀♀	*Sex ratio*	x^2
Transvaal Museum, Pretoria	37	39	1 ♂ : 1,1 ♀♀	0,1
Kaffrarian Museum, Kingwilliams-town	40	31	1,3 ♂♂ : 1 ♀	0,901

Conclusion

It would therefore seem reasonable to assume that steenbok populations in Southern Africa (or at least those sampled directly) have a 1 : 1 sex ratio.

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