

From the game numbers in Table 8.7 it can be seen that the ratios of the

Chapter 9. Management of Ungulates-

Non selective grazers 18.5%

Selective grazers 37.4%

Mixed feeders 30.9%

Browsers 13.2%

Present Game Numbers

The 1997 game numbers were approximated by using data from a helicopter count, and a ground count, as well as personal observations of species not observed in the counts.

The recommended ratio of the different types of feeders according to Bothma(1986) should be the following:

- 40% non selective grazers
- 20% selective grazers
- 20% mixed grazers (grazing and browsing)
- 20% browsers

The present game numbers are given in Table 8. In this table the ungulates are divided into four different types of feeders. The percentage of the total grazing capacity that each species occupies is given and totalled for each category of feeder. The large stock unit conversion according to Meisner (1982) is also given, and from this the L.S.U. conversion for each species is given.

Table 8: Present game numbers of the Game Park

Maximum LSU game (minus cattle)	260			
Maximum LSU cattle (minus game)	367			
Game type	Number	LSU Conversion	LSU Equivalent	% of capacity
Non-selective grazers				
Buffalo	0	1.00	0.0	0.0
Bushpig	0	4.00	0.0	0.0
Hippopotamus	0	0.55	0.0	0.0
Mountain Zebra	0	1.84	0.0	0.0
Ostrich	22	3.50	6.3	2.4
White Rhinoceros	0	0.41	0.0	0.0
Zebra	53	1.84	28.8	11.1
Total	75		35.1	13.5
Selective grazers				
Black wildebeest	0	2.69	0.0	0.0
Blesbok	58	4.97	11.7	4.5
Blue wildebeest	66	2.65	24.9	9.6
Gemsbok	0	2.30	0.0	0.0
Grey rhebok	0	7.00	0.0	0.0
Red hartebeest	118	2.61	45.2	17.4
Reedbuck	0	6.14	0.0	0.0
Roan antelope	0	2.28	0.0	0.0
Sable antelope	14	1.95	7.2	2.8
Springbok	0	9.00	0.0	0.0
Tsessebe	17	3.32	5.1	2.0
Waterbuck	7	2.17	3.2	1.2
Total	280		97.3	37.4
Mixed grazers				
Eland	56	1.23	45.53	17.5
Impala	320	6.14	52.12	20.0
Mountain Reedbuck	9	7.00	1.29	0.5
Nyala	5	3.91	1.28	0.5
Warthhog	21	5.62	3.74	1.4
Total	411		103.9	39.9
Browsers				
Black rhinoceros	0	0.64	0.00	0
Bushbuck	0	7.62	0.00	0
Duiker	4	12.00	0.33	0
Giraffe	26	0.68	38.24	15
Klipspringer	0	12.00	0.00	0
Kudu	50	2.45	20.41	8
Steenbok	4	15.00	0.27	0
Total	84		59.2	22.8
Grand total	850		295.6	113.6

The recommended number of game for the Game Park is given in Table 9. Similarly to Table 8, the species were categorised according to their feeding habits. The conversion was made to large stock units (Meisner, 1982), and the percentage of the total grazing capacity utilised by each ungulate species was calculated. The total percentage of the grazing capacity utilised by each of the four types of feeders was then calculated. With the optimal sex ratios and minimum herd size (Bothma, 1986) taken into account, the recommended numbers of each species was calculated.

It was found that the percentage of non selective grazers is low (about 13.5%)(Table 8). To combat this it is normally recommended that buffalo are introduced to the Game Park. This will bring the ratio up slightly, this is however not essential and perhaps not practical in Bynespoort Game Park as there is a distinctive safety risk for hikers, involved in keeping buffalo. In general however, the game numbers are under the grazing capacity for Bynespoort Game Park, and can be given time to multiply, with none of the species over the limit. Studies of kudu habitat recommend that the quota for kudu should be 3 kudu/100 ha (Bredenkamp pers. comm.) and if seen in this light the numbers are high. The stocking rate is recommended to be 107.25% when the ratio of the selective feeders is corrected. This is over the 100% capacity as giraffe occupy 13% of the capacity and in fact they do not affect general condition of the veld as they utilise a unique niche.

In Table 10 the recommended game numbers under a low rainfall (400 mm) is given. The grazing capacity for the Game Park then drops to 141 large stock units. Selective grazers would have to be decreased by quite some margin. This scenario is important to take into account because of the predictions by scientists of the drought effects of El-Nino. In such times it can be seen that the game numbers recommended are much less than in the normal rainfall year, and too high numbers could result in deaths and also in increased stress on all game in the Park.

Table 9: Recommended game numbers in an average rainfall year

Maximum LSU game (minus cattle)		260						
Maximum LSU cattle (minus game)		-28						
Game type	% of Capacity	LSU Conversion	LSU Equivalent	Number Animals	Sex Ratio	Number Male	Number Female	Minimum Herd Size
Non-selective grazers								
Buffalo	10,00	1,00	26,02	26	1:3	7	20	12
Bushpig	0,80	4,00	2,08	8	2:3	3	5	5
Hippopotamus	0,00	0,55	0,00	0	2:3	0	0	5
Mountain Zebra	0,00	1,84	0,00	0	3:7	0	0	10
Ostrich	4,00	3,50	10,41	36	1:1	18	18	6
White Rhinocero	0,00	0,41	0,00	0	1:2	0	0	6
Zebra	15,00	1,84	39,04	72	3:7	22	50	10
Total	29,80		77,55	143				
Selective grazers								
Black Wildebeest	0,00	2,69	0,00	0	3:5	0	0	8
Blesbok	4,00	4,97	10,41	52	3:7	16	36	10
Blue Wildebeest	8,60	2,65	22,38	59	1:4	12	47	15
Gemsbok	0,00	2,30	0,00	0	1:4	0	0	5
Grey Rhebok	0,00	7,00	0,00	0	1:3	0	0	4
Red hartebeest	12,00	2,61	31,23	82	3:5	31	51	8
Reedbuck	0,00	6,14	0,00	0	3:7	0	0	10
Roan antelope	0,00	2,28	0,00	0	3:5	0	0	8
Sable antelope	2,80	1,95	7,29	14	3:5	5	9	8
Springbok	0,00	9,00	0,00	0	1:4	0	0	25
Tsessebe	2,04	3,32	5,31	18	3:5	7	11	8
Waterbuck	0,84	2,17	2,19	5	3:5	2	3	8
Total	30,28		78,80	229				
Mixed grazers								
Eland	12,20	1,23	31,75	39	1:3	10	29	12
Impala	14,00	6,14	36,43	224	1:4	45	179	25
Mountain Reedbuc	0,50	7,00	1,30	9	1:3	2	7	8
Nyala	0,60	3,91	1,56	6	3:7	2	4	10
Warthog	0,80	5,62	2,08	12	2:3	5	7	10
Total	28,10		73,13	290				
Browsers								
Black Rhinoceros	0,00	0,64	0,00	0	2:3	0	0	5
Bushbuck	0,00	7,62	0,00	0	1:3	0	0	8
Duiker	0,30	12,00	0,78	9	1:1	5	5	4
Giraffe	13,00	0,68	33,83	23	3:5	9	14	8
Klipspringer	0,00	12,00	0,00	0	1:1	0	0	4
Kudu	6,00	2,45	15,61	38	1:3	10	29	12
Steenbok	0,20	15,00	0,52	8	1:1	4	4	6
Total	19,50		50,75	78				
Grand total								
	107,68		280,22	740				

Table 10: Recommended game numbers in a below average rainfall year

Maximum LSU game (minus cattle)		141						
Maximum LSU cattle (minus game)		-15						
Game type	% of Capacity	LSU Conversion	LSU Equivalent	Number Animals	Sex Ratio	Number Male	Number Female	Minimum Herd Size
Non-selective grazers								
Buffalo	10,00	1,00	14,08	14	1:3	4	11	12
Bushpig	0,80	4,00	1,13	5	2:3	2	3	5
Hippopotamus	0,00	0,55	0,00	0	2:3	0	0	5
Mountain Zebra	0,00	1,84	0,00	0	3:7	0	0	10
Ostrich	4,00	3,50	5,63	20	1:1	10	10	6
White Rhinocero	0,00	0,41	0,00	0	1:2	0	0	6
Zebra	15,00	1,84	21,11	39	3:7	12	27	10
Total	29,80		41,95	77				
Selective grazers								
Black Wildebeest	0,00	2,69	0,00	0	3:5	0	0	8
Blesbok	4,00	4,97	5,63	28	3:7	8	20	10
Blue Wildebeest	8,60	2,65	12,11	32	1:4	6	26	15
Gemsbok	0,00	2,30	0,00	0	1:4	0	0	5
Grey Rhebok	0,00	7,00	0,00	0	1:3	0	0	4
Red hartebeest	12,00	2,61	16,89	44	3:5	17	28	8
Reedbuck	0,00	6,14	0,00	0	3:7	0	0	10
Roan antelope	0,00	2,28	0,00	0	3:5	0	0	8
Sable antelope	2,80	1,95	3,94	8	3:5	3	5	8
Springbok	0,00	9,00	0,00	0	1:4	0	0	25
Tsessebe	2,04	3,32	2,87	10	3:5	4	6	8
Waterbuck	0,84	2,17	1,18	3	3:5	1	2	8
Total	30,28		42,62	124				
Mixed grazers								
Eland	12,20	1,23	17,17	21	1:3	5	16	12
Impala	14,00	6,14	19,71	121	1:4	24	97	25
Mountai Reedbuc	0,50	7,00	0,70	5	1:3	1	4	8
Nyala	0,60	3,91	0,84	3	3:7	1	2	10
Warthog	0,80	5,62	1,13	6	2:3	3	4	10
Total	28,10		39,55	157				
Browsers								
Black Rhinoceros	0,00	0,64	0,00	0	2:3	0	0	5
Bushbuck	0,00	7,62	0,00	0	1:3	0	0	8
Duiker	0,30	12,00	0,42	5	1:1	3	3	4
Giraffe	13,00	0,68	18,30	12	3:5	5	8	8
Klipspringer	0,00	12,00	0,00	0	1:1	0	0	4
Kudu	6,00	2,45	8,45	21	1:3	5	16	12
Steenbok	0,20	15,00	0,28	4	1:1	2	2	6
Total	19,50		27,45	42				
Grand total								
	107,68		151,57	400				

Table 11: Recommended game numbers in an above average rainfall year

Maximum LSU game (minus cattle)	410							
Maximum LSU cattle (minus game)	-44							
Game type	% of Capacity	LSU Conversion	LSU Equivalent	Number Animals	Sex Ratio	Number Male	Number Female	Minimum Herd Size
Non-selective grazers								
Buffalo	10,00	1,00	41,02	41	1:3	10	31	12
Bushpig	0,80	4,00	3,28	13	2:3	5	8	5
Hippopotamus	0,00	0,55	0,00	0	2:3	0	0	5
Mountain Zebra	0,00	1,84	0,00	0	3:7	0	0	10
Ostrich	4,00	3,50	16,41	57	1:1	29	29	6
White Rhinocero	0,00	0,41	0,00	0	1:2	0	0	6
Zebra	15,00	1,84	61,53	113	3:7	34	79	10
Total	29,80		122,24	225				
Selective grazers								
Black Wildebeest	0,00	2,69	0,00	0	3:5	0	0	8
Blesbok	4,00	4,97	16,41	82	3:7	24	57	10
Blue Wildebeest	8,60	2,65	35,28	93	1:4	19	75	15
Gemsbok	0,00	2,30	0,00	0	1:4	0	0	5
Grey Rhebok	0,00	7,00	0,00	0	1:3	0	0	4
Red hartebeest	12,00	2,61	49,22	128	3:5	48	80	8
Reedbuck	0,00	6,14	0,00	0	3:7	0	0	10
Roan antelope	0,00	2,28	0,00	0	3:5	0	0	8
Sable antelope	2,80	1,95	11,49	22	3:5	8	14	8
Springbok	0,00	9,00	0,00	0	1:4	0	0	25
Tsessebe	2,04	3,32	8,37	28	3:5	10	17	8
Waterbuck	0,84	2,17	3,45	7	3:5	3	5	8
Total	30,28		124,20	361				
Mixed grazers								
Eland	12,20	1,23	50,04	62	1:3	15	46	12
Impala	14,00	6,14	57,43	353	1:4	71	282	25
Mountain Reedbuc	0,50	7,00	2,05	14	1:3	4	11	8
Nyala	0,60	3,91	2,46	10	3:7	3	7	10
Warthog	0,80	5,62	3,28	18	2:3	7	11	10
Total	28,10		115,26	457				
Browsers								
Black Rhinoceros	0,00	0,64	0,00	0	2:3	0	0	5
Bushbuck	0,00	7,62	0,00	0	1:3	0	0	8
Duiker	0,30	12,00	1,23	15	1:1	7	7	4
Giraffe	13,00	0,68	53,32	36	3:5	14	23	8
Klipspringer	0,00	12,00	0,00	0	1:1	0	0	4
Kudu	6,00	2,45	24,61	60	1:3	15	45	12
Steenbok	0,20	15,00	0,82	12	1:1	6	6	6
Total	19,50		79,99	124				
Grand total	107,68		441,69	1166				

Table 11 reflects the recommended game numbers if the rainfall is particularly good (851mm). It can be seen that the grazing capacity is much higher (410 L.S.U.). This scenario is an indication of the stocking rates in a good rainfall year. It is not recommended that the Park be stocked to this quota as they can spoil the condition of the veld in normal times.

The general recommendation is that game should be stocked to the normal rainfall year, or a little below that, but that it does not get any higher over the next few years, because of the predictions of the dry cycle.